# SLV-E80AP/B/IT/NC/NP/UX/UY/VP
## RMT-V141A/V142A/V146A/V146D

# SERVICE MANUAL

*AEP Model*
*SLV-E80AP*
*French Model*
*SLV-E80B*
*Italian Model*
*SLV-E80IT*
*North European Model*
*SLV-E80NC*
*Spanish Model*
*SLV-E80NP*
*UK Model*
*SLV-E80UX/UY*
*Germany Model*
*SLV-E80VP*

- **Refer to the SERVICE MANUAL of VHS MECHANICAL ADJUSTMENT II for MECHANICAL ADJUSTMENTS. (9-972-816-11)**

VHS Hi-Fi

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## SPECIFICATIONS

### System

**Channel coverage**
AP, IT, NC, NP, VP :
  PAL :
    VHF E2-E-12
    CATV S01-S03, S1-S20
    HYPER S21-S41
    UHF E21-E69

B :
  SECAM:
    VHF F2-F10
    CATV C1-C23
    HYPER C24-C44
    UHF F21-E69
  PAL :
    VHF E2-E-12
    CATV S01-S03, S1-S20
    HYPER S21-S41
    UHF E21-E69

UX, UY :
    UHF B21-B69

**RF output signal**
UHF channels 30 – 39

**Aerial out**
75-ohm asymmetrical aerial socket

### Inputs and outputs

**EURO-AV (LINE 1)**
**CANAL+ (B, UY)**
21-pin
Video input: pin 20
Audio input: pins 2 and 6
Video output: pin 19
Audio output: pins 1 and 3

**LINE IN 2**
VIDEO IN, Phono jack (1)
Input signal: 1 Vp-p, 75 ohms, unbalanced, sync negative
AUDIO IN, Phono jack (1)
Input level: –7.5 dBs (0 dBs = 0.775 Vrms)
Input impedance: more than 47 kilohms

**EURO-AV (LINE 3) (UX, UY)**
21-pin
Video input: pin 20
Audio input: pins 2 and 6
Video output: pin 19
Audio output: pins 1 and 3

**AUDIO OUT**
Phono jack (1)
Rated output level: –7.5 dBs
Load impedance: 47 kilohms
Output impedance: less than 10 kilohms

### General

**Power requirements**
220 – 240 V AC, 50 Hz

**Power consumption**
25 W

**Operating temperature**
5°C to 40°C

**Storage temperature**
–20°C to 60°C

– Continued on next page –

MICROFILM

# VIDEO CASSETTE RECORDER

SONY®

**Dimensions**
Approx. 430 × 100 × 375 mm
(w/h/d)
including projecting parts and
controls

**Weight**
Approx. 5.2 kg

## Supplied accessories

Remote commander (1)
R6 (size AA) batteries (2)
Aerial cable (1)
Audio cable (1)
Mains lead (1)
RF screwdriver (1)

Design and specifications are subject to change without notice.

## SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

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# SERVICE NOTE

## 1. RETURNING PINCH ROLLER, GUIDE ROLLER AND ELEVATOR CAM TO STOP CONDITION

1) Remove the bottom panel.
2) Turn the worm gear Ⓐ of the cam motor, located at lower of the MD, to the arrow direction Ⓑ by finger.

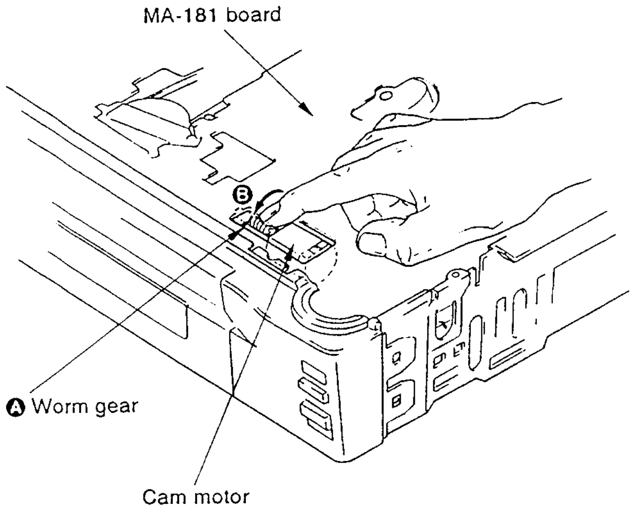

MA-181 board
Ⓑ
Ⓐ Worm gear
Cam motor

*Fig. 1.*

## 2. WINDING TAPE TO CASSETTE HALF

Turn the flywheel Ⓐ of the capstan motor to the arrow direction Ⓑ by finger, then the cassette tape will be wound to the cassette half.

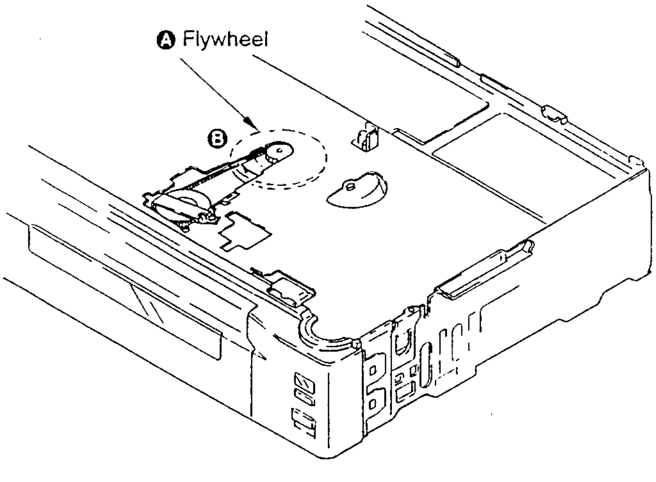


*Fig. 2.*

## 3. TAKING OUT CASSETTE WHEN UNIT IS DEFECTIVE WITH CASSETTE IN

1) Remove the upper case.
2) Turn the worm gear Ⓐ of the FL cassette compartment motor to the arrow direction Ⓑ by finger.

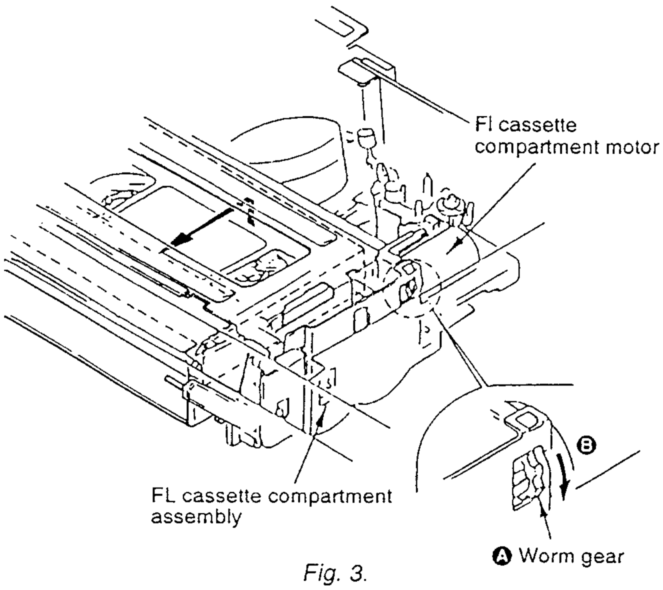

Fl cassette compartment motor
FL cassette compartment assembly
Ⓑ
Ⓐ Worm gear

*Fig. 3.*

**Note:** When performing 1. to 3., be careful not to clog and damage the cassette tape.

## 4. UPPER DRUM REPLACEMENT

### 4-1. Removal of Upper Drum

1) Remove the screw ❶ (+P3 × 6) and take out the grounding shaft ❷. (See Fig. 4.)
2) Completely remove the rotary upper drum board and desolder the soldering indicated by the arrows.
3) Remove two screw ❸ (PSW3 × 8) and take out the rotary upper drum in the arrow direction Ⓐ. (See Fig. 5.)
   If it difficult, remove by shaking the rotary upper drum gradually.

**Note:** If the drum can not be removed, check wheater the solders have been removed or not again.

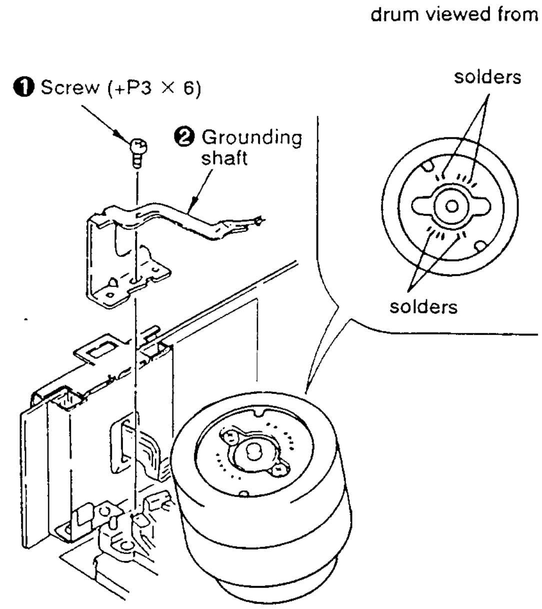

drum viewed from up
❶ Screw (+P3 × 6)
❷ Grounding shaft
solders
solders

Fig. 4.

### 4-2. Mounting Upper Drum

1) When inserting the rotary drum into the lower drum, be careful not to blur the contacting surface with fingerprint or the like.
2) Mount the rotaly upper drum board by aligning marked ➡ with marked ⇄ of rotary transformer board (lower drum) so that the screw holes of both upper and lower drums match. (See Fig. 5.)
3) If it is difficult, mount the upper drum by shaking it gradually.
   **Note:** Be careful not to damage the head. Make sure that the upper drum is tightly inserted.
4) Tighten two screws ❸ (PSW3 × 8). (See Fig. 5.)
   **Note:** Temporary tighten two screws. After making sure that upper drum is tightly inserted, tighten the screws.
5) Solder points on the board of the rotary upper drum.
6) Fix the grounding shaft ❷ using the screw ❶ (+P3 × 6) so that the protrusin of grounding shaft end contacts the center of the drum shaft.
   **Note:** When attaching the grounding shaft ❷, be careful not to apply force to the spring section of it.

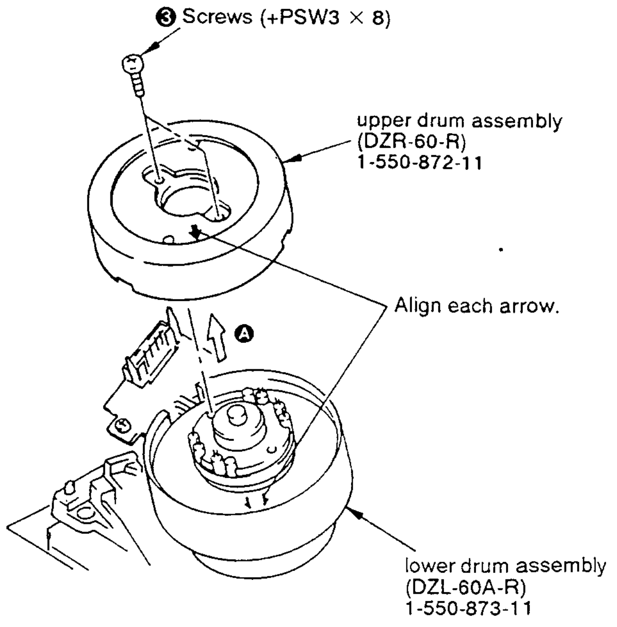

❸ Screws (+PSW3 × 8)
upper drum assembly (DZR-60-R) 1-550-872-11
Align each arrow.
Ⓐ
lower drum assembly (DZL-60A-R) 1-550-873-11

Fig. 5.

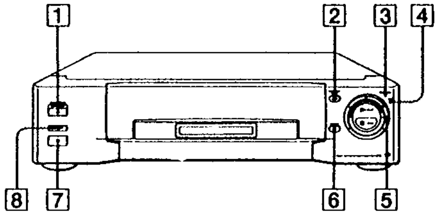
# SECTION 1
# GENERAL

This section is extracted from SLV-E80 UX/ UY instruction manual.

## Index to parts and controls

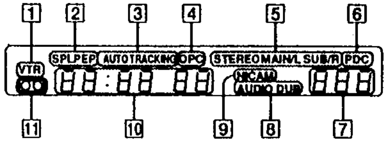
Refer to the pages indicated in ( ) for details.

### Front panel, with cover closed



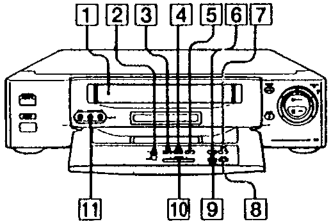
1. ON/STANDBY switch/indicator
2. ◀◀◀ HI-SPEED REW button (16)
3. TIMER REC (recording) indicator (19)
4. REC (recording) indicator
5. DUAL MODE SHUTTLE ring (16)
6. ❚❚ PAUSE button (16)
7. Remote sensor (6)
8. ≙ EJECT button (16)

### Display window



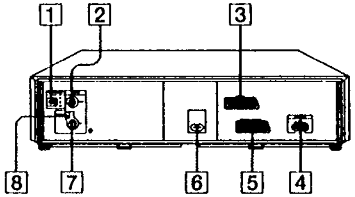
1. VTR indicator (20)
2. Tape speed indicators (19)
3. AUTO TRACKING indicator (31)
4. OPC indicator (31)
5. Sound indicators (20)
6. PDC indicator *(SLV-E80UX only)* (24)
7. Line/Programme position indicator
8. AUDIO DUB indicator (36)
9. NICAM indicator (20)
10. Linear time counter/Clock (11, 17)
11. Tape indicator

### Front panel, with cover opened



1. Tape compartment
2. EDIT switch (35)
3. TV/VTR button (20)
4. INPUT SELECT button (8)
5. PDC button *(SLV-E80UX only)* (24)
6. OPC button (31)
7. QUICK TIMER button (19)
8. ● REC button (18)
9. TIMER REC ON/OFF button (19)
10. PROGRAM buttons (8)
11. LINE IN 2 jacks (34)

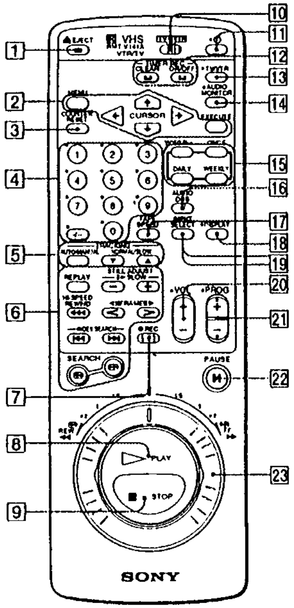
### Rear panel



1. RF CHANNEL screw (8)
2. AERIAL OUT connector (7)
3. EURO-AV (LINE 3) connector (7)
4. AUDIO OUT jacks (7)
5. EURO-AV (LINE 1) connector (7)
6. AC IN connector (7)
7. AERIAL IN connector (7)
8. LOCAL/DX switch (15)

## Index to parts and controls
(continued)

### Remote commander



1 ⏏ EJECT button (16)

2 Menu operation buttons (7)
   MENU button
   CURSOR ↑/↓/←/→ buttons
   EXECUTE button

3 COUNTER RESET button (17)

4 Programme number buttons and -/-- button (10)

5 TRACKING buttons (31)
   ▼/▲ NORMAL/SLOW
   STILL ADJUST buttons
   AUTO/MANUAL button

6 Tape transport buttons
   I► SLOW buttons (29)
   REPLAY button (30)
   ◄II/II► FRAME buttons (29)
   ◄◄◄ HI-SPEED REWIND button (16)
   I◄◄/►►I INDEX SEARCH buttons (32)
   ⊖/⊕ SEARCH buttons (16)

7 ● REC (recording) button (18)

8 ▷ PLAY button (16)

9 ■ STOP button (16)

10 TV/VTR remote control switch (6)

11 ⏻ (on/standby) button

12 TIMER REC buttons
   CLEAR button (27)
   ON/OFF button (19)

13 TV/VTR button (20)

14 AUDIO MONITOR button (17)

15 VIDEO Plus+ buttons (25)
   VIDEO Plus+ button
   ONCE button
   DAILY button
   WEEKLY button

16 AUDIO DUB button (36)

17 TAPE SPEED button (18)

18 DISPLAY button (17)

19 INPUT SELECT button (8)

20 VOL (volume) button

21 PROG (programme) button (8)

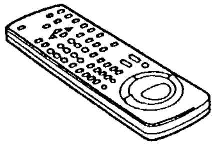
22 II PAUSE button (16)

23 DUAL MODE SHUTTLE ring (16)

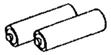
# Step 1 Unpacking

**Check that you have the following items:**

- **Remote commander**



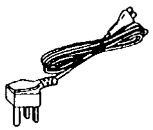
- **R6 (size AA) batteries**



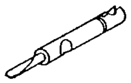
- **Aerial cable**

- **Audio cable**

- **Mains lead**

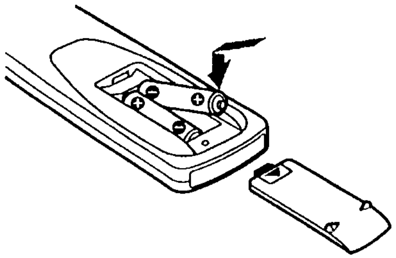


- **RF screwdriver**



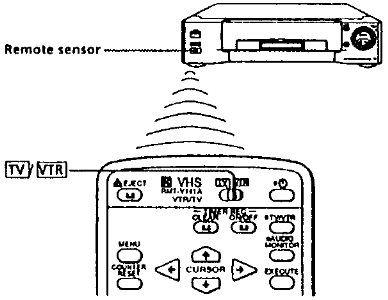
# Step 2 Setting up the remote commander

**Insert two R6 (size AA) batteries by matching the + and – on the batteries to the diagram inside the battery compartment.**



### Using the remote commander

You can use this remote commander to operate this VCR and a Sony TV. Buttons on the remote commander marked with a dot (•) can be used to operate your TV.

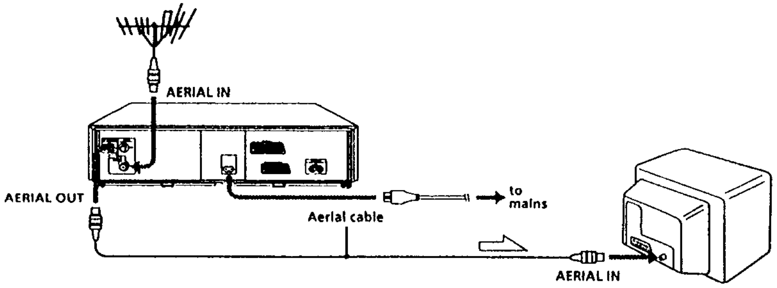

Remote sensor
TV/VTR
EJECT
VHS
TV/VTR
CURSOR
MENU
COUNTER RESET
EXECUTE
AUDIO MONITOR

| To operate | Set TV/VTR to |
|---|---|
| the VCR | VTR and point at the remote sensor on the VCR |
| a Sony TV | TV and point at the remote sensor on the TV |

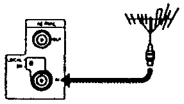
**Notes**

- With normal use, the batteries should last for approximately three to six months.
- If you do not use the remote commander for an extended period of time, remove the batteries to avoid possible damage from battery leakage.
- Do not use a new battery with an old one.
- Do not use different types of batteries.

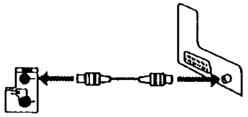
# Step 3 Connecting the VCR


AERIAL IN
AERIAL OUT
Aerial cable
to mains
AERIAL IN

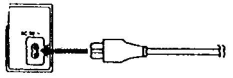
**1** **Disconnect the aerial input cable from your TV and connect it to AERIAL IN of the VCR.**



**2** **Connect AERIAL OUT of the VCR and the aerial input of your TV using the supplied aerial cable.**



**3** **Connect AC IN of the VCR and the mains supply using the mains lead.**
You've completed the basic hookup to watch and record TV programmes.

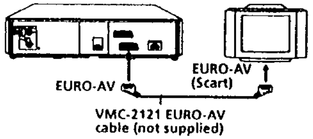


## Additional connections

**To a TV that has a EURO-AV (Scart) connector**

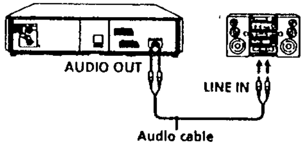
This additional connection can improve picture and sound quality.

**1** Connect to the TV as shown on the right.
**2** Set RF MODULATOR to OFF.
1) Press MENU.
2) Press CURSOR ↑/↓ to select SET UP MENU, then press EXECUTE.
3) Press CURSOR ↑/↓ to select RF MODULATOR and set to OFF.
(See page **33**.)


EURO-AV
EURO-AV (Scart)
VMC-2121 EURO-AV cable (not supplied)

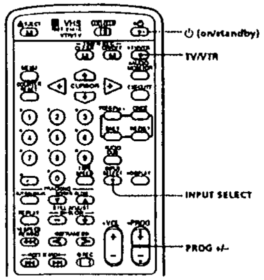
**To a stereo system**

You can improve sound quality by connecting to a stereo system as shown on the right.


AUDIO OUT
LINE IN
Audio cable

## Step 4 Tuning the TV to your VCR

If you have connected the VCR to your TV using the EURO-AV cable, skip this step.



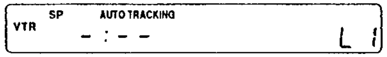
⏻ (on/standby)
TV/VTR
INPUT SELECT
PROG +/-

**1** •⏻

**Press ⏻ (on/standby) to turn on the VCR.**

**2** •TV/VTR

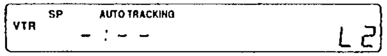
**Press TV/VTR to light "VTR" in the display window.**



VTR
SP
AUTO TRACKING
- : - -
L 1

**3** INPUT SELECT

**Press INPUT SELECT until "L2" appears in the display window.**



VTR
SP
AUTO TRACKING
- : - -
L 2

**4**

**Turn on your TV and select a programme position for video playback.**

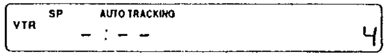
**5**

**Tune the TV between UHF channels 30 and 39 so that a grey screen appears on the TV screen.**

Refer to your TV manual for tuning instructions.

**6** INPUT SELECT

**Press INPUT SELECT until "L2" disappears and a programme number appears instead.**



VTR
SP
AUTO TRACKING
- : - -
4

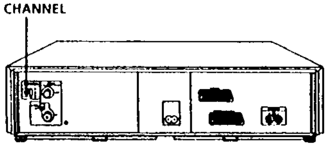
**7** •PROG

**Press PROG +/– to check to see if the TV screen changes to a different programme.**

You have now tuned your TV to the VCR. Whenever you play a tape, set the TV to the programme position selected in step **4** above.

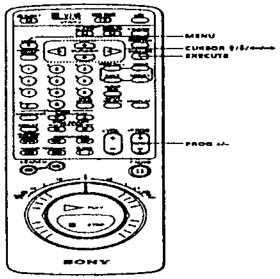
**To obtain a clear grey screen**

The grey screen may not appear clearly in step **5** above. In this case, turn the RF CHANNEL screw at the rear of the VCR with the supplied RF screwdriver, to a position where the TV clearly displays a grey screen.



## Step 5 Tuning the VCR to TV channels

Now you can set your VCR to receive broadcast channels using the on-screen display.

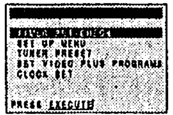


MENU
CURSOR ↑/↓/←/→
EXECUTE
PROG +/-
SONY

**1** MENU

**Press MENU.**

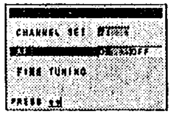
The following menu appears on the TV screen.



SET UP MENU
TUNER PRESET
SET VIDEO PLUS PROGRAMS
CLOCK SET
PRESS EXECUTE

**2** CURSOR EXECUTE

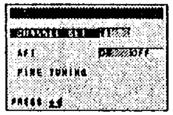
**Press CURSOR ↑/↓ to move the cursor (▮) to TUNER PRESET, then press EXECUTE.**



CHANNEL SET
OFF
FINE TUNING
PRESS

**3** CURSOR

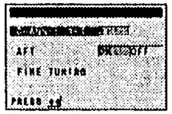
**Press CURSOR ↑/↓ to move the cursor (▮) to CHANNEL SET.**



AFT
OFF
FINE TUNING
PRESS

**4** •PROG

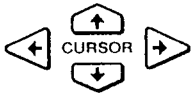
**Press PROG +/– to select the programme position.**



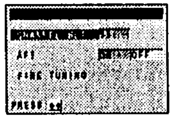
AFT
OFF
FINE TUNING
PRESS

(continued)

5



**Press CURSOR → to start tuning.**
The VCR starts searching for a channel and displays the first one it finds on the TV screen. Press CURSOR ←/→ repeatedly until the channel you want is displayed.


AFT
FINE TUNING
PRESS

If you know the number of the channel you want, press the number buttons. For example, for channel 43, first press "4" and then press "3."

6

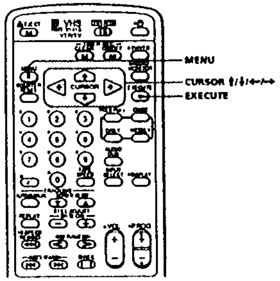
**To allocate another channel to another programme position, repeat steps 4 and 5.**

7

**Press EXECUTE to store all the allocated channels.**

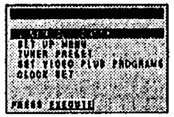
# Step 6 Setting the clock

You must set the time and date on the remote commander to be able to use the timer recording features properly.

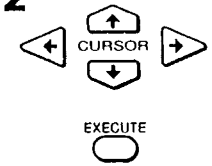

MENU
CURSOR ↑/↓/←/→
EXECUTE

1

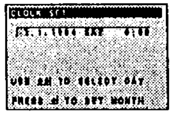
**Press MENU.**
The main MENU appears on the TV screen.


SET UP MENU
TUNER PRESET
SET VIDEO PLUS PROGRAMME
CLOCK SET
PRESS EXECUTE

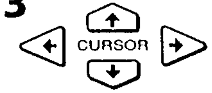
2


CURSOR
EXECUTE

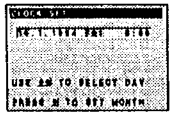
**Press CURSOR ↑/↓ to move the cursor (▮) to CLOCK SET, then press EXECUTE.**
The CLOCK SET menu appears on the TV screen and the day is highlighted.


CLOCK SET
USE ↑↓ TO SELECT DAY
PRESS → TO SET MONTH

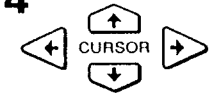
3



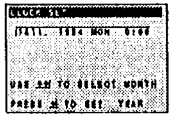
**Set the day using CURSOR ↑/↓.**
The day of the week is set automatically.


CLOCK SET
USE ↑↓ TO SELECT DAY
PRESS → TO SET MONTH

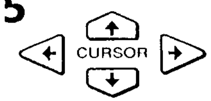
4



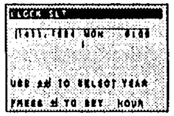
**Press CURSOR → to highlight the month.**
**Set the month using CURSOR ↑/↓.**


CLOCK SET
MON
USE ↑↓ TO SELECT MONTH
PRESS → TO SET YEAR

5

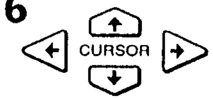


**Press CURSOR → to highlight the year.**
**Set the year using CURSOR ↑/↓.**

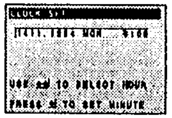

CLOCK SET
MON
USE ↑↓ TO SELECT YEAR
PRESS → TO SET HOUR

(continued)

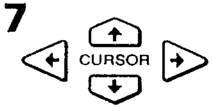
**6**



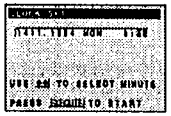
**Press CURSOR → to highlight the hour.**
**Set the hour using CURSOR ↑/↓.**



**7**



**Press CURSOR → to highlight the minutes.**
**Set the minutes using CURSOR ↑/↓.**



**8**

**Press EXECUTE to start the clock.**

**Note**

- The menu disappears automatically if you don't proceed for more than one minute.

# Step 7 Setting up VIDEO Plus+

VIDEO Plus+ is a feature in Sony VCRs that simplifies the task of programming the VCR to make timer recordings.

**How VIDEO Plus+ works**

Whenever you want to record a TV programme, all you need to do is look up the programme's "PlusCode," a number assigned to each programme that's published in TV guide magazines. Then, just enter the PlusCode of the programme you want and the VCR is automatically programmed to record that show. It's that simple. With VIDEO Plus+, you no longer have to go through a lengthy and often repetitive procedure when you set start and stop times, channel numbers, and dates. All this information is automatically sent to your VCR when you enter the programme's PlusCode.

**How to set up your VCR**

Before using VIDEO Plus+ to make timer recordings, check whether the programme position number assigned to each TV channel matches those you have preset on the VCR.

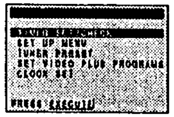
The initial assignment is:

| TV channel | BBC 1 | BBC 2 | ITV | CH 4 | CH 5 |
|---|---|---|---|---|---|
| Programme position | 1 | 2 | 3 | 4 | 5 |

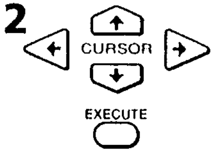
For example, if ITV is preset to programme position 7 on your VCR, you must change the initial assignment using the following procedure. For programme positions whose numbers are the same, you can skip this procedure.

**1**

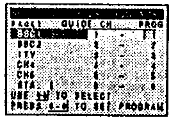
**Press MENU.**
The main MENU appears on the TV screen.



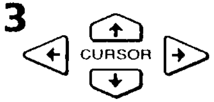
**2**



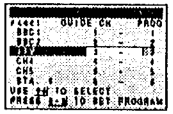
**Press CURSOR ↑/↓ to move the cursor (▮) to SET VIDEO PLUS PROGRAMS, then press EXECUTE.**
The SET VIDEO PLUS PROGRAMS menu appears.



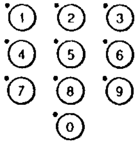
**3**



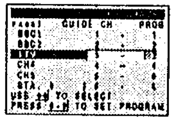
**Press CURSOR ↑/↓ to move the cursor (▮) to the TV channel whose programme position number you want to change.**
The programme position is highlighted.



**4**



**Enter the programme position number that you have preset on your VCR.**
To change other initial settings, repeat steps **3** and **4**.



**5**

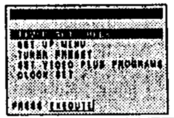
**When you've finished, press EXECUTE to exit.**

## Step 7 Setting up VIDEO Plus+ (continued)

**How to preset satellite channels**
If you connect the VCR to a satellite tuner, you must preset the satellite channels to make timer settings for satellite programmes using VIDEO Plus+. Once you have made the settings, you don't need to modify them unless you change the VCR-satellite tuner connection. However, if you have connected more than one satellite tuner to the VCR via the AERIAL IN connector, the EURO-AV (Scart) connector (Line 1 and Line 3) and the LINE 2 VIDEO/AUDIO jacks (Line 2), you must change the settings each time you change the tuner on which you want to receive a satellite programme.

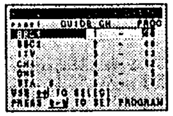
**1** MENU

**Press MENU.**
The main MENU appears on the TV screen.



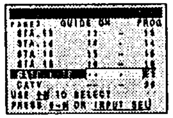
**2** CURSOR EXECUTE

**Press CURSOR ↑/↓ to move the cursor (▮) to SET VIDEO PLUS PROGRAMS, then press EXECUTE.**
The SET VIDEO PLUS PROGRAMS menu appears.



**3** CURSOR

**Press CURSOR ↑/↓ to move the cursor (▮) to SATELLITE.**
The SET VIDEO PLUS PROGRAMS menu consists of three on-screen pages. Press and hold CURSOR ↓ to move the cursor (▮) to the third page, and select SATELLITE.

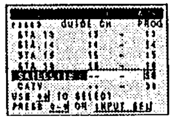


**4**

**Enter the programme position number for satellite broadcasts:**

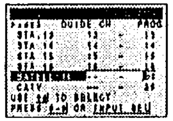
1 2 3 4 5 6 7 8 9 0

- **If you have connected the satellite tuner via the AERIAL IN jack, enter the programme position number.**
  Use the number that is used for viewing satellite programmes on the VCR. (If you use programme position 50 to view satellite programmes on the VCR, enter "5" and then "0.")



INPUT SELECT

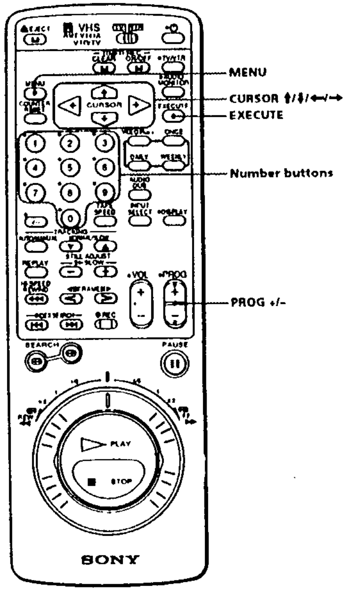
- **If you have connected the satellite tuner via the EURO-AV (Scart) LINE 1/LINE 3 connector or the LINE 2 VIDEO/AUDIO jacks, press INPUT SELECT.**
  If you have connected the satellite tuner via the EURO-AV (Scart) connector, select L1 or L3; if you are using the LINE 2 VIDEO/AUDIO jacks, select L2.

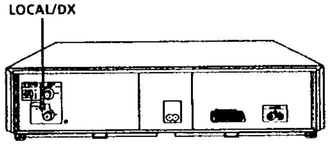


**5** EXECUTE

**When you've finished, press EXECUTE to exit.**

## Additional tuning instructions

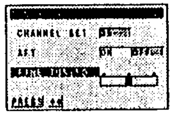




### If the picture is not clear

Normally, the Auto Fine Tuning (AFT) function automatically tunes in channels clearly. If, however, the picture is not clear, you may also use the manual tuning function.

1 Press PROG +/– to select the programme number for which you cannot obtain a clear picture.
2 Press MENU, then select TUNER PRESET and press EXECUTE.
3 Select FINE TUNING. The fine tuning meter appears.



4 Press CURSOR ←/→ to get a clearer picture, then press EXECUTE. Note that the AFT (Auto Fine Tuning) setting switches to OFF.

### If the TV signal is too strong

Set the LOCAL/DX switch on the rear of the VCR to LOCAL.

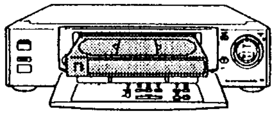
### Disabling unwanted programme positions

After tuning the TV channels, you can disable unused programme positions. Positions that are disabled will be skipped later when you press the PROG +/– buttons.

1 Press MENU, then select TUNER PRESET and press EXECUTE.
2 Press PROG +/– until the programme position you want to disable appears beside "PROG" on the TV screen.
3 Press number button "0" twice to display the number "0" beside CHANNEL SET.
4 Repeat steps **2** and **3** for other positions you want to disable.
5 Press EXECUTE.

## Basic Operations

# Playing a tape



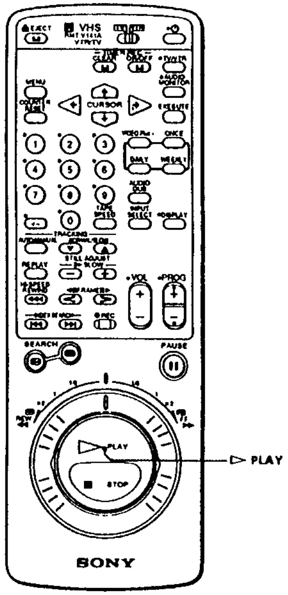
This section shows you how to play back a video tape.

**1** **Turn on your TV and tune in to the VCR:**

- If the TV is connected to the VCR using the EURO-AV cable, set the TV to video input.
- If the TV is connected to the VCR using only the aerial cable, set the TV to the programme position for the VCR.

**2** **Open the drop down panel and insert a tape.**
The VCR turns on automatically. The tape starts playing automatically if its safety tab has been removed. (See page **21**.)

**3** **Press ▷ PLAY to start playing.**
When the tape reaches the end, the VCR automatically rewinds it to the beginning. (The power remains on.)



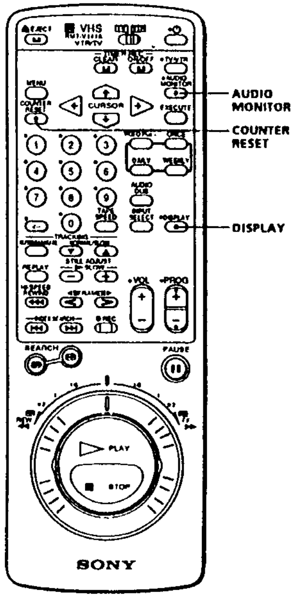
**Notes**
- When a tape is reinserted, the counter returns to "0H00M00S."
- The counter will not work on tape portions with no recording.

**Notes**
- When you play a tape recorded in monaural, the sound is heard in monaural regardless of the AUDIO MONITOR setting.
- To play a tape in stereo, you must use the EURO-AV connection or a LINE or AUDIO OUT connection.
- If AUDIO MIX in the SET UP MENU is set to ON, the AUDIO MONITOR button doesn't work.

### Additional tasks

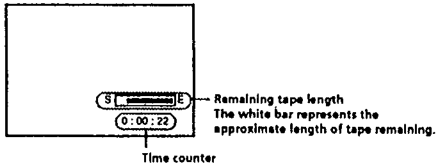
| To | Press |
|---|---|
| Stop play | ■ STOP |
| Pause play | ❚❚ PAUSE |
| Resume play after pause | ❚❚ PAUSE or ▷ PLAY |
| Search forward | Turn the DUAL MODE SHUTTLE (DMS) ring to ⊕ during playback |
| Search backward | Turn the DMS ring to ⊖ during playback |
| Fast-forward the tape | Turn the DMS ring to ▶▶ FF during stop |
| Rewind the tape | Turn the DMS ring to ◀◀ REW during stop |
| Rewind the tape at high speed | ◀◀◀ HI-SPEED REWIND |
| Eject the tape | ≙ EJECT |

**Tip**
- For further information on searching and playback functions, see "Playing/searching at various speeds" on page **29**.



## Displaying the remaining tape length and time counter

Press DISPLAY to turn the display on or off.


S
E
0:00:22
Remaining tape length
The white bar represents the approximate length of tape remaining.
Time counter

## Using the time counter

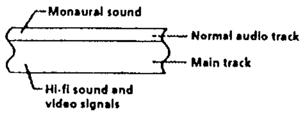
At the point on a tape that you want to find later, press COUNTER RESET to reset the counter to "0H00M00S." When you rewind or advance the tape to this point, refer to the counter.

## Playing stereo and bilingual programmes

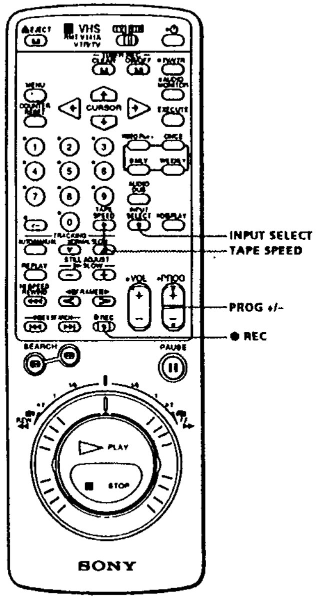
Press AUDIO MONITOR to select the desired sound. Each press of the button changes the display on the VCR and TV screen.

| To listen to a | | Press AUDIO MONITOR until | |
|---|---|---|---|
| **Stereo tape** | **Bilingual tape** | **The TV screen shows** | **The display window indicator shows** |
| Stereo | Main and sub sounds | "STEREO" | "STEREO" |
| Left channel | Main sound | "Lɑɪ" | "MAIN/L" |
| Right channel | Sub sound | "Rɑɪ" | "SUB/R" |
| Sound on normal audio track (monaural) | Sound on normal audio track | No indication | No indication |

**How sound is recorded on a video tape**
This VCR records sound onto two different tracks. High-fidelity sound (usually stereo) is recorded onto the main track along with the picture. Monaural sound is recorded onto the normal audio track along the edge of the tape.



# Recording TV programmes



This section shows you how to record TV programmes in the most basic way: manual recording. With manual recording, you start the VCR recording when the programme begins, then stop it when the programme ends. The VCR also provides the following ways of recording:

- Manually start recording, then stop it automatically—"Recording using the quick timer" (page 19)
- Automatically start and stop recording—"Recording TV programmes using the timer" (page 22)
- Automatically start and stop recording by simply entering the "PlusCode" number—"Recording TV programmes using VIDEO Plus+" (page 25)

**1 Turn on your TV and tune in to the VCR:**
- If the TV is connected to the VCR using the EURO-AV cable, set the TV to video input.
- If the TV is connected to the VCR using only the aerial cable, set the TV to the programme position for the VCR.

**2 Open the drop down panel and insert a tape with its safety tab in place.**

**3 Press INPUT SELECT until a programme position appears in the VCR's display window.**

**4 Select the desired programme position by pressing PROG +/-.**

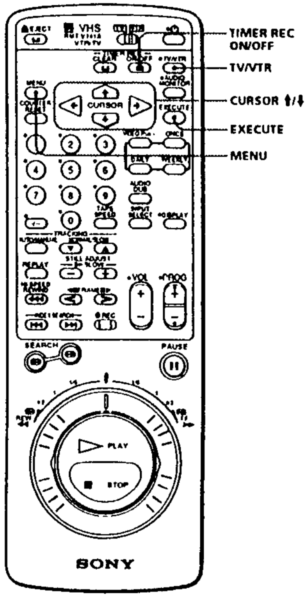
**5 Select the tape speed, SP (standard play) or LP (long play), by pressing TAPE SPEED.**
See "To select tape speeds" on the next page.

**6 Start recording by pressing ● REC.**
When the tape reaches the end, the VCR automatically rewinds it to the beginning.

**Note**
- If you insert a cassette with its safety tab removed, the VCR starts playing. To record on this tape, cover the tab hole on the cassette, or the VCR will eject it when your press ● REC.

**Tip**
- To select programme positions, you can also use the number buttons on the remote commander. For two-digit numbers, press the -/-- (ten's digit) button followed by the number buttons.

**Tips**
- To cut out an unwanted scene while recording, press ❚❚ PAUSE, turn the DUAL MODE SHUTTLE ring on the VCR to rewind the tape to the beginning of the unwanted scene, then press ❚❚ PAUSE to resume recording.
- The display appears on the TV screen indicating information about the tape, but the information will not be recorded on the tape.
- If you don't want to watch TV while recording, you can turn off the TV. When using a decoder, make sure to leave it on.



**To stop recording**
Press ■ STOP.

**To select tape speeds**
When recording, select either SP or LP. LP provides recording time twice as long as SP. However, SP provides better picture quality. You can mix SP and LP on the same tape. When playing back, the VCR automatically detects the tape speed. See the table below for the maximum recording/playback time in each speed.

| Tape type | Maximum recording/playback time | |
|---|---|---|
| | SP | LP |
| E-240 | 4 hrs. | 8 hrs. |
| E-180 | 3 hrs. | 6 hrs. |
| E-120 | 2 hrs. | 4 hrs. |
| E-60 | 1 hr. | 2 hrs. |

## Recording using the quick timer

The quick timer enables you to record for a specified period of time in intervals of 30 minutes. Once you specify the recording time, the VCR automatically stops recording. Before you begin, check that the clock is set correctly.

After you start recording, press QUICK TIMER until the desired duration appears in the display window. The TIMER REC indicator on the VCR lights up. Each press increases the recording duration in increments of 30 minutes as shown below.

→ 0:00 → 0:30 → 1:00 ------→ 8:30 → 9:00 ↩

The recording duration decreases minute by minute to 0:00, then the VCR turns off automatically.

**To stop recording**
To stop quick-timer recording while the VCR is recording a programme, press TIMER REC ON/OFF to turn off the TIMER REC indicator on the VCR.

**To extend the recording duration while recording**
Press QUICK TIMER until the desired duration appears in the display window.

## Recording TV programmes
(continued)

### Watching a TV programme while recording another

You can watch a TV programme and record another at the same time.

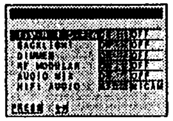
1 Press TV/VTR on the top right of the remote commander to turn off the VTR indicator in the display window.
2 Select the desired programme position on the TV.

**Note**
- If you are using the VCR to record while watching another programme, you cannot use a satellite tuner.

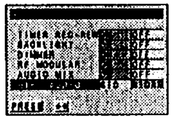
### Recording stereo and bilingual programmes: in NICAM system

This VCR receives and records stereo and bilingual programmes based on the NICAM system. When NICAM broadcasts are received, the NICAM indicator appears in the display window; when stereo broadcasts are received, the STEREO indicator appears; when bilingual broadcasts are received, "MAIN/L" appears in the display window.

1 Press MENU and select SET UP MENU.



2 Set HI-FI AUDIO to NICAM by pressing CURSOR ↑/↓/←/→



3 Press EXECUTE to store the setting.

Using the NICAM setting, NICAM broadcasts are recorded as in the following table.

| Track | Sound recorded | |
|---|---|---|
| | **Stereo** | **Bilingual** |
| **Hi-fi audio Left channel** | Left channel | Main |
| **Hi-fi audio Right channel** | Right channel | Sub |
| **Normal audio (monaural)** | Standard | Standard |

**Note**
- If you set HI-FI AUDIO to STD, the standard sound is recorded on both the hi-fi and normal audio tracks. (You cannot select the listening sound using AUDIO MONITOR.)

**To monitor stereo and bilingual programmes while recording**
Press AUDIO MONITOR to select the desired sound.

***Stereo programmes***

| To listen to | Press AUDIO MONITOR until | |
|---|---|---|
| | **The TV screen shows** | **The display window indicator shows** |
| Stereo sound | "STEREO" | "STEREO" |
| Standard sound | No indication | No indication |

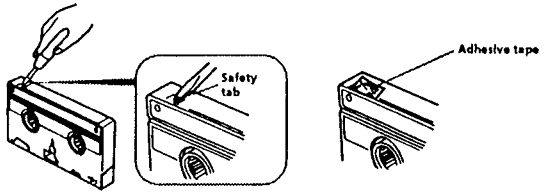
***Bilingual programmes***

| To listen to | Press AUDIO MONITOR until | |
|---|---|---|
| | **The TV screen shows** | **The display window indicator shows** |
| Main sound | "MAIN" | "MAIN/L" |
| Sub sound | "SUB" | "SUB/R" |
| Main and sub sounds | "MAIN/SUB" | "MAIN/L, SUB/R" |
| Standard sound | No indication | No indication |

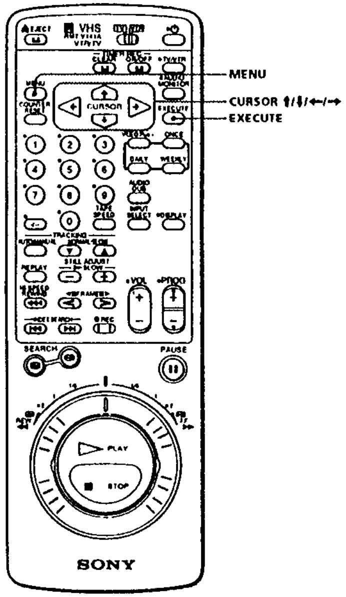
### Saving a recording

Video tapes have a safety tab to protect against accidental recording. To prevent accidental erasure of a recording, break off the safety tab with a screwdriver or other tool. A tape with its safety tab removed ejects if you try to record on it.

To record on a tape with its safety tab removed, cover the tab hole with adhesive tape.



# Recording TV programmes using the timer

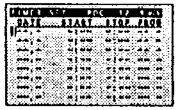


This section shows you how to let the VCR automatically start and stop recording TV programmes. You can preset up to eight programmes within a one month time frame.

**Before you start...**

- Check that the clock is set correctly.
- Insert a tape with its safety tab in place. Make sure the tape is longer than the total recording time.
- Turn on your TV and tune in to the VCR.

**1** **Press MENU and select TIMER SET/CHECK, then press EXECUTE.**
A short beep alerts you if the clock needs to be set.

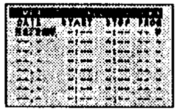


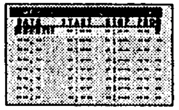
**2** **Set the date to start recording:**

1 Press CURSOR →.
Make sure today's date is highlighted. If it isn't, reset the clock to the correct time.

2 Press CURSOR ↑ to set the date and month.
The day of the week is set automatically.

To record the same programme every day or the same day once a week, see "Daily/weekly recording" on page **24**.

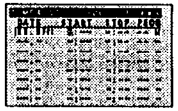


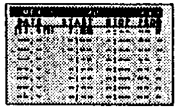


**3** **Set the time to start recording:**

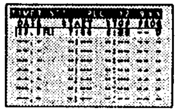
1 Press CURSOR → to highlight the hour under "START," then press CURSOR ↑/↓ to set the hour.

2 Press CURSOR → to highlight the minutes under "START," then press CURSOR ↑/↓ to set the minutes.





**4** **Press CURSOR →, then set the time to stop recording in the same way.**



**Tips**

- To set the channel, you can also use the PROG +/– or number buttons.
- To record video sources from LINE IN 1, 2, or 3 jacks, press INPUT SELECT to display "L1," "L2," or "L3" in the "PROG" position.

**Tip**

- To set the recording tape speed, you can also use TAPE SPEED.

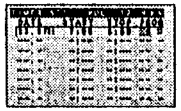
**Tip**

- To change or correct a setting before confirming it, press CURSOR → to highlight the item you want to change and reset it.

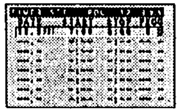
**Notes**

- If the power is interrupted for more than one hour while the VCR is standing by for recording, the timer settings are cleared. Reset the timer.

**5** **Press CURSOR →, then press CURSOR ↑/↓ to select the programme you want to record.**
Only the channels preset in the VCR will appear.



**6** **Press CURSOR →, then press CURSOR ↑/↓ to select the tape speed, SP (standard play) or LP (long play).**
See "To select tape speeds" on page **19**.



**7** **To confirm your programme, press CURSOR →.**
All the settings stop being highlighted and the cursor (▮) appears in the leftmost column.
To preset another timer setting, move the cursor to the next line using CURSOR ↓ and repeat steps **2** to **7**.

**8** **After making the desired timer settings, press EXECUTE.**

**9** **Press TIMER REC ON/OFF.**
The TIMER REC indicator on the VCR lights up and the VCR turns off and stands by for recording.
The VCR automatically turns on and starts recording at the preset start time, and turns off at the preset stop time.

**To stop recording**

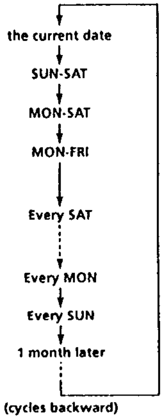
To stop while the VCR is recording a program, press TIMER REC ON/OFF to turn off the TIMER REC indicator on the VCR.

**To use the VCR while recording**

You can do the following tasks during timer recording.

| To | Press |
|---|---|
| Reset the counter to "0H00M00S" | COUNTER RESET |
| Display tape information on the TV screen | DISPLAY |
| Check the timer settings | MENU, and select TIMER SET/CHECK |
| Watch another TV programme | TV/VTR (See "Watching a TV programme while recording another" on page **20**.) |

## Recording TV programmes using the timer (continued)



**Notes**
- If recording times overlap due to a PDC timer shift, the programme that was broadcast first has priority. The second programme will begin to record only when the first programme has finished.
- If the PDC signal is too weak or the broadcasting station failed to transmit PDC signals, the VCR will record the programme without using the PDC function even if the PDC indicator is lit in the display window.

### Using the VCR before timer recording begins

Press TIMER REC ON/OFF to turn off the TIMER REC indicator on the VCR, then press ⏻ (on/standby). The VCR is ready for use.

After using the VCR, press TIMER REC ON/OFF again to turn on the TIMER REC indicator on the VCR. Remember to reset the VCR to stand by for recording before the time you've set the VCR to start recording, or the timer setting will be cancelled.

### Daily/weekly recording

Daily recording records the same programme every day of the week; weekly recording records the same programme on the same day, every week.

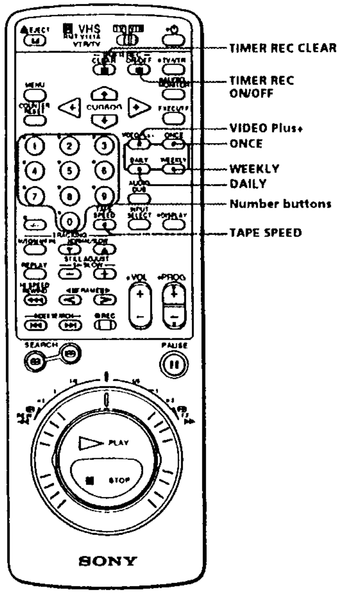
When you set the date to start recording in step **2** of "Recording TV programmes using the timer," press CURSOR ⬇ until the desired day appears. Each time you press the button, the indication changes as shown on the left.

### Timer recording with PDC signals (*SLV-E80UX only*)

The broadcast system transmits PDC (Programme Delivery Control) signals with its TV programmes. These signals ensure that your timer recordings are made regardless of broadcast delays, early starts or broadcast interruptions. When setting the timer, make sure to enter the start and stop times exactly as indicated in the TV programme guide, otherwise the PDC function will not work.

1 If the TIMER REC indicator on the VCR is lit, press TIMER REC ON/OFF on the VCR to release the VCR from standby and turn off the indicator.
2 Press ⏻ to turn on the VCR.
3 Press PDC on the VCR.
The PDC indicator lights up in the display window.
4 If you turned off the TIMER REC indicator in step **1**, press TIMER REC ON/OFF on the VCR.
The VCR returns to recording standby. Once you switch on the PDC function, it works on all timer settings that are set to programmes with PDC signals.

## Recording TV programmes using VIDEO Plus+

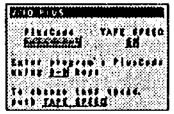


**Tip**
- If you've entered the wrong PlusCode, press TIMER REC CLEAR and start again from the beginning.

This section shows you another way of timer recording: recording using VIDEO Plus+. This allows you to record TV programmes more easily. Just enter the programme's "PlusCode," and the VCR will automatically record the programme. You can preset up to eight programmes within a one month time frame.

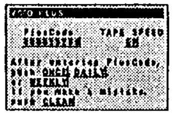
**Before you start...**
- Check that the clock is set correctly.
- Insert a tape with its safety tab in place. Make sure the tape is longer than the total recording time.
- Turn on your TV and tune in to the VCR.

**1 Press VIDEO Plus+.**
A short beep alerts you if the clock needs to be set.



**2 Enter the desired programme's PlusCode using the number buttons.**
If you make a mistake, press TIMER REC CLEAR and enter the PlusCode again.

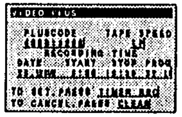
**3 Select the tape speed, SP (standard play) or LP (long play), by pressing TAPE SPEED.**



**4 Press ONCE, DAILY or WEEKLY according to the following:**

| To record the programme | Press |
|---|---|
| Only once | ONCE |
| Monday to Friday at the same scheduled time | DAILY |
| Every week at the same scheduled time | WEEKLY |

The recording information appears on the TV screen: date, program start and stop times, programme position number and tape speed. Check that the information is correct. If not, press TIMER REC CLEAR. To preset another timer setting, repeat steps **1** to **4**.



(continued)

## Recording TV programmes using VIDEO Plus+ (continued)

**Note**
- If the power is interrupted for more than one hour while the VCR is standing by for recording, the timer settings are cleared. Reset the timer.

**Notes**
- You cannot set VIDEO Plus+ in the following cases:
  - When the VCR is turned off.
  - While recording using the timer or quick timer.
- The timer will not accept settings in the following cases:
  - When you select DAILY for a Saturday and Sunday program.
  - When you select DAILY or WEEKLY for a programme more than seven days ahead.
  - When you enter the PlusCode of a programme that has already ended.

**5** **Press TIMER REC ON/OFF.**
The TIMER REC indicator on the VCR lights up and the VCR stands by for recording.
The VCR automatically turns on, records the programme and turns off.

**To record satellite broadcasts**
1. Turn on the satellite tuner.
2. On the satellite tuner, select the satellite programme for which you wish to make a timer setting.
3. Repeat the steps described above.
4. Keep the satellite tuner turned on until the VCR finishes recording the satellite programme for which you have made a timer setting.

**To stop recording**
To stop while the VCR is recording a programme, press TIMER REC ON/OFF to turn off the TIMER REC indicator on the VCR.

**To use the VCR while recording**
You can do the following tasks while recording using VIDEO Plus+.

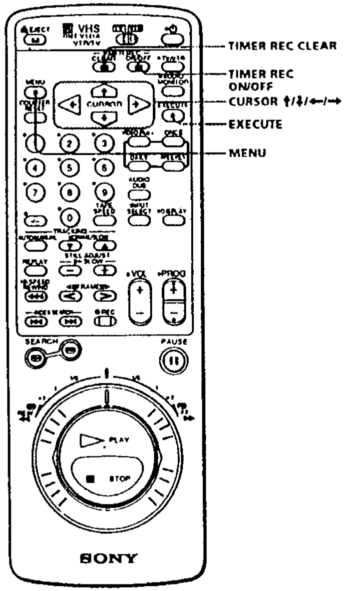
| To | Press |
|---|---|
| Reset the counter to "0H00M00S" | COUNTER RESET |
| Display tape information on the TV screen | DISPLAY |
| Check the timer settings | MENU and select TIMER SET/CHECK |
| Watch another TV programme | TV/VTR (See "Watching a TV programme while recording another" on page 20.) |

### Using the VCR before recording begins

Press TIMER REC ON/OFF to turn off the TIMER REC indicator on the VCR, then press ⏻ (on/standby). The VCR is ready for use.

After using the VCR, press TIMER REC ON/OFF again to turn on the TIMER REC indicator on the VCR. Remember to reset the VCR to stand by for recording before the recording programme begins, or the setting will be cancelled.

## Checking/changing/cancelling timer settings

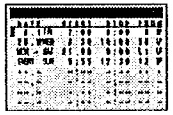


This section shows you how to check, change and cancel the timer settings after you've stored them in the VCR.

**Before you start...**
Turn on your TV and tune in to the VCR.

**1** **Press TIMER REC ON/OFF to turn off the TIMER REC indicator on the VCR.**

**2** **Press ⏻ (on/standby) to turn on the VCR, then press MENU and select TIMER SET/CHECK. Then press EXECUTE.**



**3** **Check the timer settings:**
- If you do not want to change or cancel the settings, press EXECUTE, then press TIMER REC ON/OFF to return to recording standby.
- If you want to change or cancel the settings, press CURSOR ↑/↓ to move the cursor (▮) to the setting you want to change or cancel.

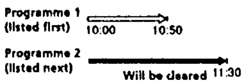
**4** **Change or cancel the timer setting:**
- To change the setting, press CURSOR ↑/↓ to highlight the item you want to change, and reset it using CURSOR ↑/↓. Then, press CURSOR → to move the cursor to the leftmost column.
- To cancel the setting, press TIMER REC CLEAR.

**5** **Press EXECUTE.**
The VCR returns to the original screen. When there are any other timer settings left in the TIMER SET/CHECK menu, turn the VCR off to return to recording standby.

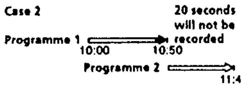
**To check the timer settings during timer recording**
Press MENU and select TIMER SET/CHECK. After checking, press EXECUTE to turn off the display.

## Checking/changing/cancelling timer settings (continued)

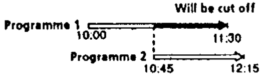
**Case 1**



**Case 2**



**Case 3**



### When the timer settings overlap

The VCR will not record overlapping programmes. If any of your timer settings overlap, change the settings.

***Case 1: If you preset two programmes to start recording at the same time...***

The programme listed first in the TIMER SET/CHECK menu has priority over the other programmes. The timer settings of lower priority programmes will be erased from the TIMER SET/CHECK menu when the first programme begins recording.

***Case 2: If you preset programme 2 to start recording at the same time you preset programme 1 to finish recording...***

The last 20 seconds of programme 1 will not be recorded because the VCR will enter recording pause for programme 2 before programme 1 is finished.

***Case 3: If you preset programme 2 to start recording before programme 1 is finished recording...***

Programme 2 will start recording before programme 1 has finished.

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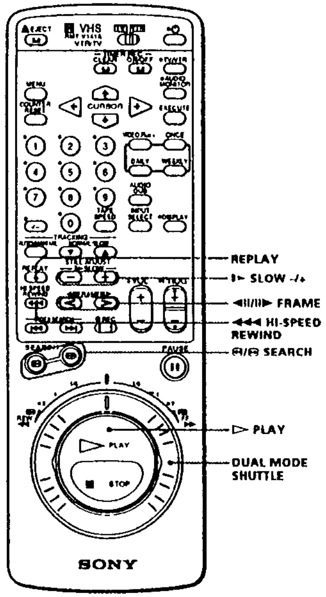
## Additional Operations

# Playing/searching at various speeds



You can play back a tape at various speeds: high-speed, slow motion, frame by frame and so on. These options are also useful for searching for a specific point during playback. The sound is muted during these operations.

| Playback options | Operation | To resume normal playback |
|---|---|---|
| Playing at various speeds: | During playback, turn the DUAL MODE SHUTTLE ring right or left to: | Release the ring. |
| One-fifth the normal speed | 1/5 | |
| Twice the normal speed | X2 | |
| High speed | ⏪ or ⏩ | |
| Fast-forwarding/Rewinding | During stop, turn the DUAL MODE SHUTTLE ring to ▶▶ FF or to ◀◀ REW and release. | Press ▷ PLAY. |
| Viewing the picture during fast-forward or rewind | During fast-forward, turn the DUAL MODE SHUTTLE ring to ▶▶ FF. During rewind, turn the ring to ◀◀ REW. | To return to the previous mode, release the ring. |
| Locking in a high-speed picture | During playback or pause, press ⏪ SEARCH or ⏩ SEARCH. To change direction, press ◀II FRAME (backward) or II▶ FRAME (forward). | Press ▷ PLAY. |
| Locking in a slow-motion picture | During playback or pause, press I▶ SLOW -/+. To change direction, press ◀II FRAME (backward) or II▶ FRAME (forward). | Press ▷ PLAY. |
| Playing frame by frame | During pause, press II▶ FRAME to advance the picture one frame or ◀II FRAME to reverse the picture one frame. | Press ▷ PLAY. |
| Playing in reverse | During playback, press ◀II FRAME. | Press ▷ PLAY. |

**(continued)**

**Tip**

- Adjust the picture using the ▼/▲ TRACKING NORMAL/SLOW STILL ADJUST buttons if:
  - Streaks appear while playing in slow motion.
  - Bands appear on the top or bottom while pausing.
  - The picture shakes while pausing.

**Note**

- If you use these functions in the LP mode, noise may appear or there may be no colour.

## Playing/searching at various speeds (continued)

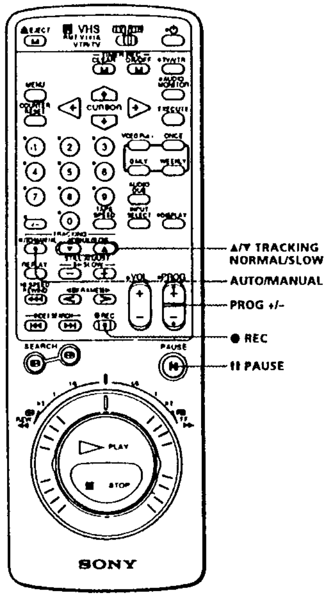
| Playback options | Operation | To resume normal playback |
|---|---|---|
| Replaying a scene | During playback or pause, press REPLAY and hold it down until the desired scene appears. When you release the button, the scene is played back in slow motion. | Press ▷ PLAY or ❚❚ PAUSE. |
| Rewinding at high speed | Press ◀◀◀ HI-SPEED REWIND. | Press ▷ PLAY. |
| Rewind and restart play | During stop, press ▷ PLAY on the VCR while holding the DUAL MODE SHUTTLE ring on the VCR at the ◀◀ REW position, or while pressing down ◀◀◀ HI-SPEED REW on the VCR. | — |

**Note**

- When rewinding at high speed, you will not see the time counter.

# Adjusting the picture

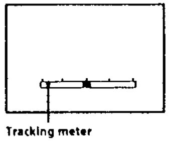
The VCR automatically adjusts the picture for the best possible playback or recording. If, however, you find the automatic adjustment unsatisfactory, you can adjust the picture manually.

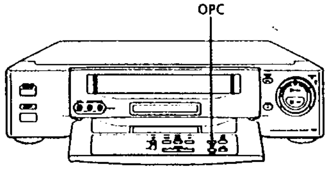


## Adjusting the tracking

Though the VCR automatically adjusts the tracking when playing a tape (the AUTO TRACKING indicator flashes in the display window, then lights steadily), distortion may occur if the tape was recorded in poor condition. If so, manually adjust the tracking condition.

Press the ▼/▲ TRACKING NORMAL/SLOW buttons to display the tracking meter. The distortion should disappear as you press one of the two buttons. If you cannot get a clear picture with manual adjustment, press TRACKING AUTO/MANUAL to return to automatic adjustment.





**Notes**

- Tapes recorded using the OPC function are played back normally on VCRs that do not have the OPC function.
- Press ❚❚ PAUSE to release recording after the OPC indicator stops flashing. If you start recording before the OPC indicator stops flashing, the OPC function is cancelled.

## About Optimum Picture Control (OPC)

Optimum Picture Control (OPC) automatically improves recording and playback quality by adjusting the VCR to the condition of the video heads and tape. To maintain better picture quality, we recommend that you leave OPC on (with the OPC indicator in the display window lit).

**To use OPC during playback**

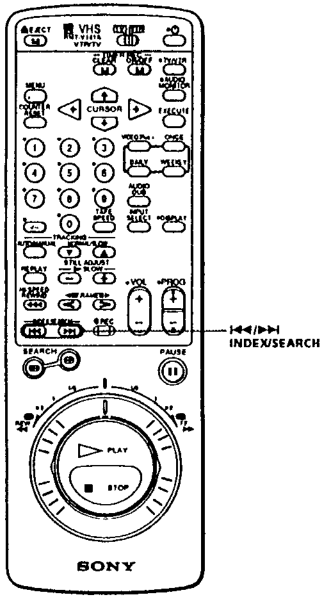
The OPC function automatically works on all types of tapes, including rental tapes. You can play a tape using the OPC function even if the tape was not recorded with it.

**To use OPC while recording**

Whenever you insert a tape and first start recording, the VCR adjusts to the tape using the OPC function (the OPC indicator flashes rapidly). This adjustment is retained until the tape is ejected. There is a short delay before the VCR actually starts recording while the VCR analyzes the tape.

If you want to start recording precisely the first time you record, set the VCR to recording pause mode (the OPC indicator flashes slowly) and press ● REC to let the VCR analyze the tape. When the OPC indicator stops flashing, press ❚❚ PAUSE to start recording. Recording begins immediately.

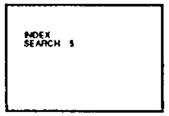
# Searching using the *index function*



The VCR automatically marks an index signal at the point where recording starts (with the exception of when you start recording from recording pause). Use this as a reference to find the beginning of the recording. Since the index number indicates the relative position from the current position, specify how many index signals ahead or behind the specific index signal is from the current position.

**1** **Insert an indexed tape into the VCR.**

**2** **Press the I◀◀/▶▶I INDEX SEARCH buttons repeatedly until the index number you want appears on the TV screen:**



- To locate succeeding programmes, press ▶▶I INDEX SEARCH.
- To locate preceding programmes, press I◀◀ INDEX SEARCH.

The VCR starts searching and the index number on the TV screen counts down to zero. Playback starts automatically from that point.

# Looking at menu options

**Tip**

- See "How sound is recorded on a video tape" on page 17.

The SET UP MENU provides you with various options to set up and customise your VCR. See the table below for the available menu choices. Initial settings are indicated in bold letters.

**Menu choices**

| Menu option | Set this option to |
|---|---|
| TIMER REC-REW | • ON to automatically rewind the tape after all timer settings have been recorded.<br>• **OFF** to cancel this setting.* |
| BACKLIGHT | • **ON** to turn on the LCD backlight.<br>• OFF to turn it off. |
| DIMMER | • ON to dim the LCD backlight.<br>• **OFF** to brighten it. |
| RF MODULATOR | • **ON** if you have connected the VCR to your TV using only the aerial cable.<br>• OFF if you have connected the VCR to your TV using the EURO-AV cable. |
| AUDIO MIX | • ON to listen to the hi-fi and normal audio tracks at the same time. The AUDIO MONITOR button becomes inoperable.<br>• **OFF** to select the sound using the AUDIO MONITOR button.<br>For details, see page 37. |
| HI-FI AUDIO | • **NICAM** to record NICAM broadcasts on a hi-fi audio track.<br>• STD to record standard sound on a hi-fi audio track.<br>For details, see page 20. |

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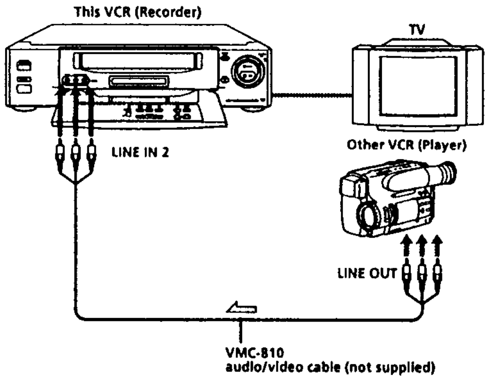
* If the tape has been recorded to the end, the VCR rewinds it regardless of this setting.

# Editing with another VCR

This section shows you how to edit to or from another VCR or camcorder. You can make a copy of a tape using this VCR for recording or playback.

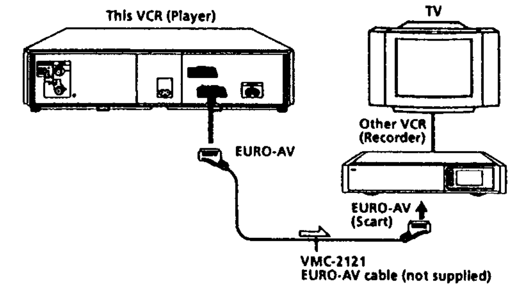
## How to hook up to record on this VCR


This VCR (Recorder)
TV
LINE IN 2
Other VCR (Player)
LINE OUT
VMC-810
audio/video cable (not supplied)

⇦ : Signal flow

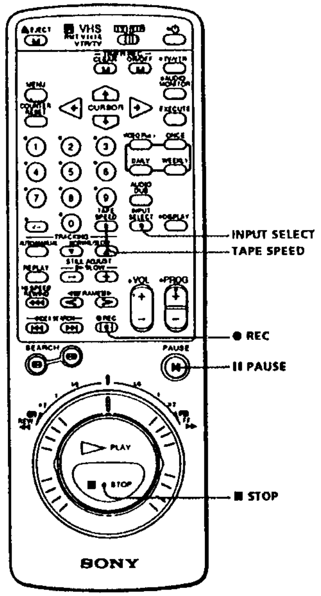
**Tips**
- Make sure you connect the plugs to jacks of the same colour.
- If the other VCR is a monaural type, leave the red plugs unconnected.

## How to hook up to record on another VCR


This VCR (Player)
TV
EURO-AV
Other VCR (Recorder)
EURO-AV (Scart)
VMC-2121
EURO-AV cable (not supplied)

⇦ : Signal flow

**Tip**
- If the other VCR doesn't have a EURO-AV (Scart) connector, use the VMC-2106 EURO-AV cable instead and connect the cable to the line in jacks of the other VCR.


INPUT SELECT
TAPE SPEED
● REC
II PAUSE
■ STOP
SONY

**Tips**
- To make your editing more precise, use the pause buttons on both VCRs.
- To cut out unwanted scenes while editing, press II PAUSE on this VCR when an unwanted scene begins. When it ends, press II PAUSE again to resume recording (Assemble Editing).

### Operation (when recording on this VCR)

***Before you start editing***
- Press INPUT SELECT to display "L2" in the display window.
- Press TAPE SPEED to select the recording tape speed (SP/LP).
- On this VCR, set the EDIT switch on the VCR to ON.
  If the other VCR has a similar switch, set it to ON as well.

1 **Insert a source tape with its safety tab removed into the other (playback) VCR. Search for the point to start playback and set it to playback pause.**

2 **Insert a tape into this (recording) VCR. Search for the point to start recording and press II PAUSE.**

3 **Press ● REC on this VCR and set it to recording pause.**

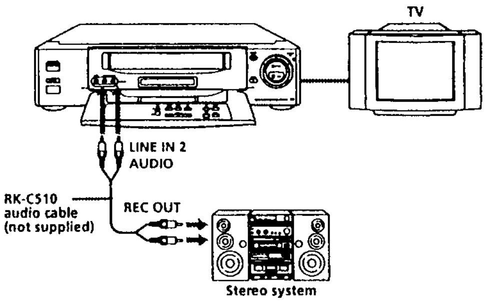
4 **To start editing, press the II PAUSE buttons on both VCRs to release the VCRs from pause.**
For best results, press the pause button on the other VCR before pressing II PAUSE on this VCR.

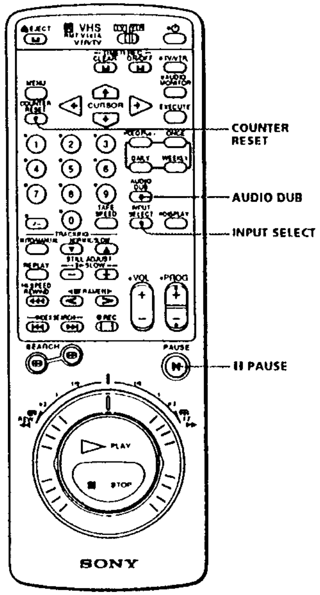
**To stop editing**
Press the ■ STOP buttons on both VCRs.

# Audio dubbing

You can add music or narration on the normal audio track. The monaural sound previously recorded is replaced while the original picture and hi-fi sound on the main track are retained. (See page **17**.)

## How to hook up


TV
LINE IN 2
AUDIO
RK-C510
audio cable
(not supplied)
REC OUT
Stereo system


COUNTER
RESET
AUDIO DUB
INPUT SELECT
II PAUSE
SONY

## Operation

**Before you start editing**
Press INPUT SELECT to display "L2" in the display window.

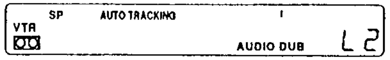
**1** **Play a recording source. Search for the point to start playback and set it to playback pause.**

**2** **Insert the prerecorded tape into this VCR. Search for the end of the section you want to dub new sound to and press II PAUSE.**
Make sure that the tape has its safety tab in place so that you can dub new sound onto it.

**3** **Press COUNTER RESET on this VCR to reset the counter to "0H00M00S."**

**4** **Rewind the tape to the beginning of the section.**
This VCR pauses.

**5** **Press AUDIO DUB.**
The AUDIO DUB indicator lights up in the display window.


SP
AUTO TRACKING
VTR
AUDIO DUB
L 2

---

**6** **To start editing, simultaneously press the II PAUSE buttons on this VCR and the stereo system.**
When the counter of this VCR reaches "0H00M00S," audio dubbing stops automatically.

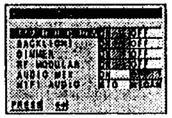
**Note**
- You must be in playback pause mode before pressing AUDIO DUB. (If you are in recording pause mode, you cannot use the audio dubbing features.)

**To stop editing**
Press the ■ STOP buttons on this VCR and the stereo system.

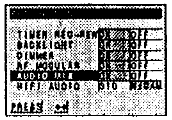
### Listening to both audio tracks during playback

When playing an audio-dubbed tape, you have a choice of listening sound. To listen to the sounds recorded on the hi-fi audio and normal audio tracks at the same time, use the SET UP MENU.

1 Press MENU and select SET UP MENU.


BACKLIGHT
DIMMER
RF MODULAR
AUDIO MIX
HIFI AUDIO
ON
OFF
STD
PRESS

2 Set AUDIO MIX to ON by pressing CURSOR ↑/↓/←/→.
The AUDIO MONITOR button becomes inoperative, and the sound you hear is mixed.


TIMER REC-REW
BACKLIGHT
DIMMER
RF MODULAR
AUDIO MIX
HIFI AUDIO
ON
OFF
STD
PRESS

3 Press EXECUTE to store the setting.
After playing the audio-inserted tape, reset AUDIO MIX to OFF.

**Tip**
- See "How sound is recorded on a video tape" on page 17.

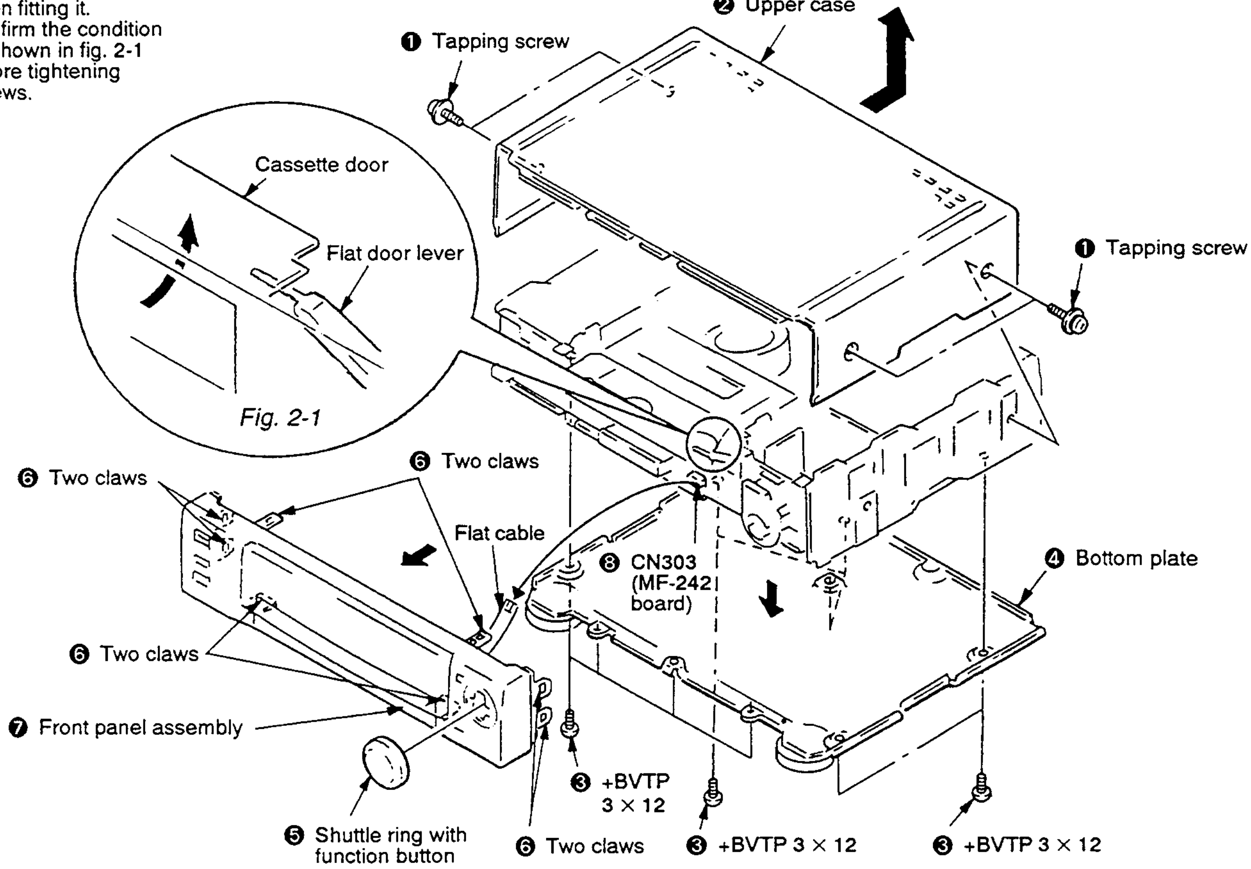
**Note**
- If AUDIO MIX remains ON, the AUDIO MONITOR button remains inoperative.

# SECTION 2
# DISASSEMBLY

**Note:** Follow the disassembly procedure in the numerical order given.

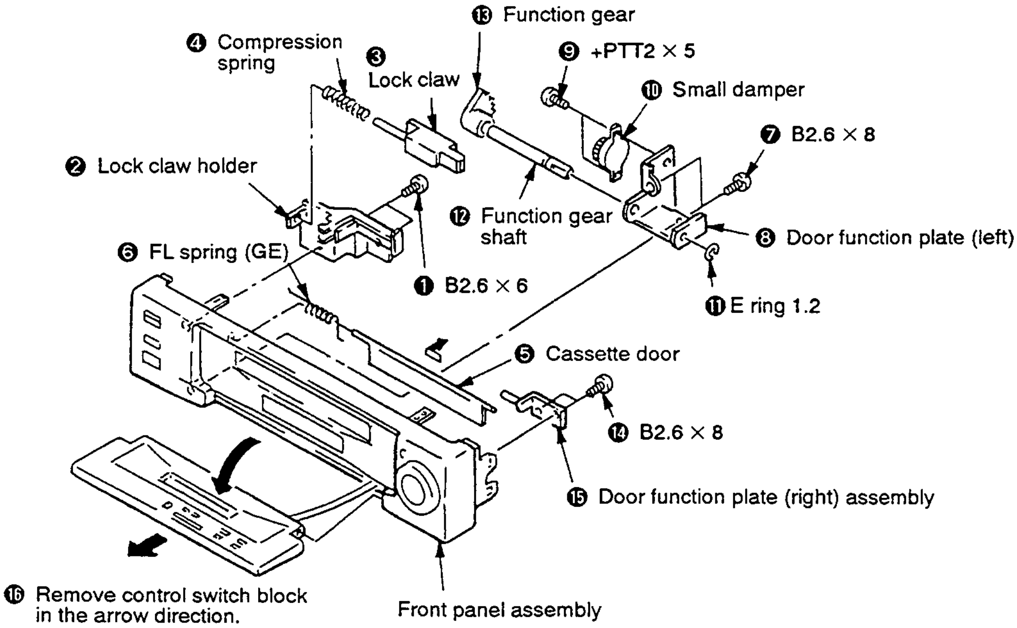
## 2-1. FRONT PANEL ASSEMBLY AND CASE

- * Note on fitting front panel assembly
  Be sure to open cassette door 90 ° when fitting it.
- Confirm the condition as shown in fig. 2-1 before tightening screws.



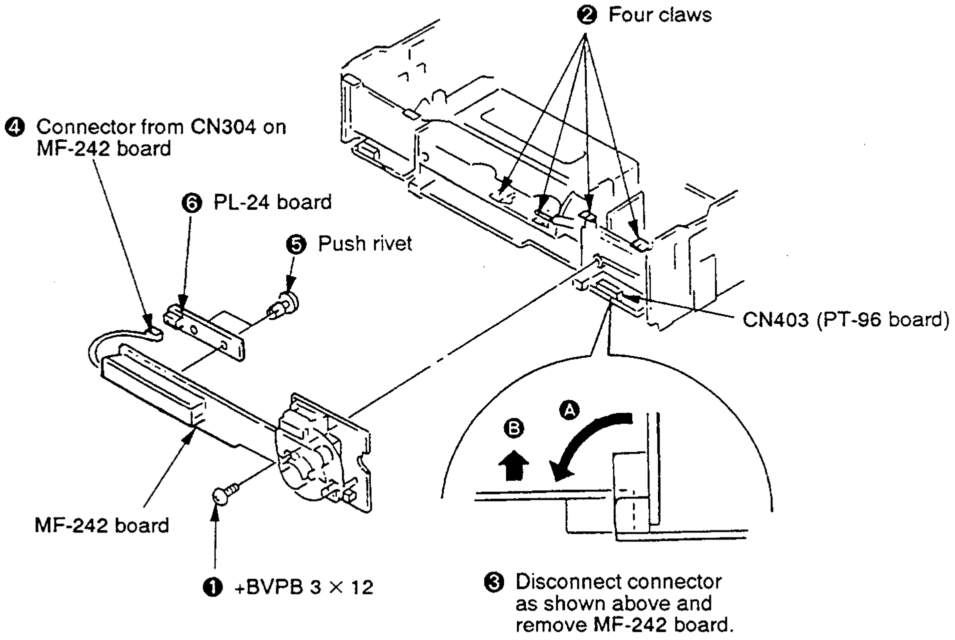
❷ Upper case
❶ Tapping screw
❶ Tapping screw
Cassette door
Flat door lever
Fig. 2-1
❻ Two claws
❻ Two claws
Flat cable
❽ CN303 (MF-242 board)
❹ Bottom plate
❻ Two claws
❼ Front panel assembly
❸ +BVTP 3 × 12
❺ Shuttle ring with function button
❻ Two claws
❸ +BVTP 3 × 12
❸ +BVTP 3 × 12

## 2-2. CONTROL SWITCH BLOCK

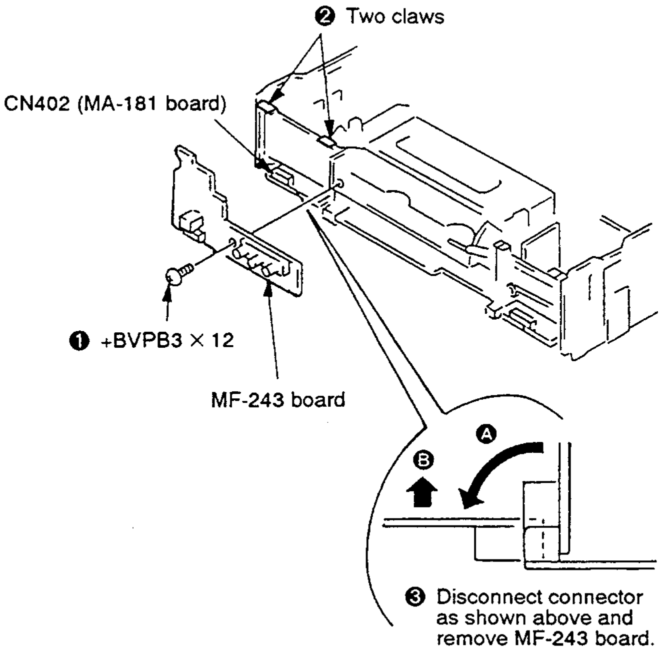


⓭ Function gear
❹ Compression spring
❸ Lock claw
❾ +PTT2 × 5
❿ Small damper
❼ B2.6 × 8
❷ Lock claw holder
⓬ Function gear shaft
❽ Door function plate (left)
❻ FL spring (GE)
❶ B2.6 × 6
⓫ E ring 1.2
❺ Cassette door
⓮ B2.6 × 8
⓯ Door function plate (right) assembly
⓰ Remove control switch block in the arrow direction.
Front panel assembly

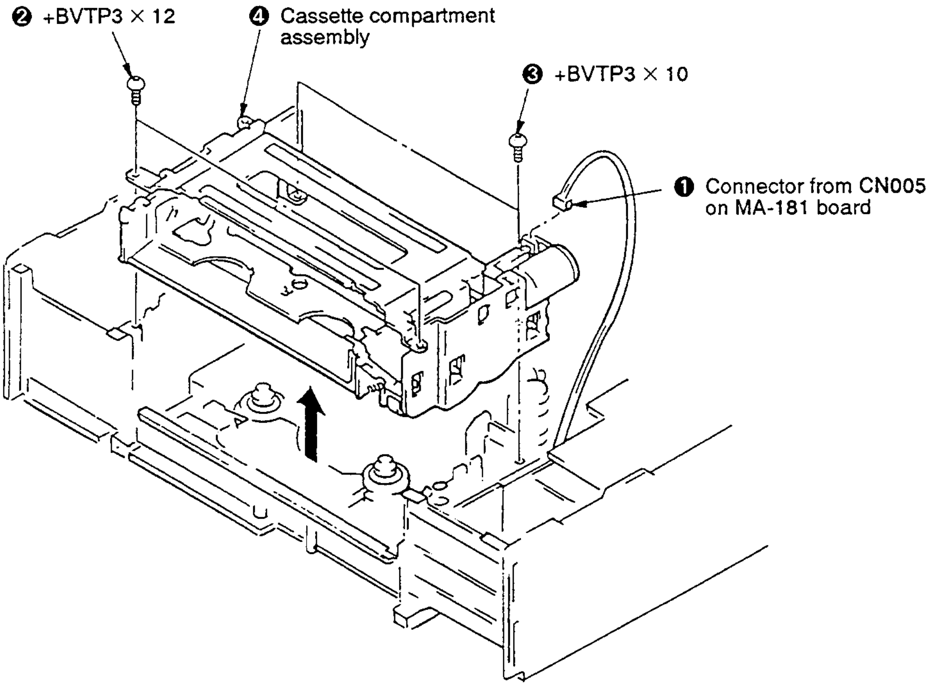
## 2-3. MF-242 AND PL-24 BOARDS


❷ Four claws
❹ Connector from CN304 on MF-242 board
❻ PL-24 board
❺ Push rivet
CN403 (PT-96 board)
Ⓐ
Ⓑ
MF-242 board
❶ +BVPB 3 × 12
❸ Disconnect connector as shown above and remove MF-242 board.

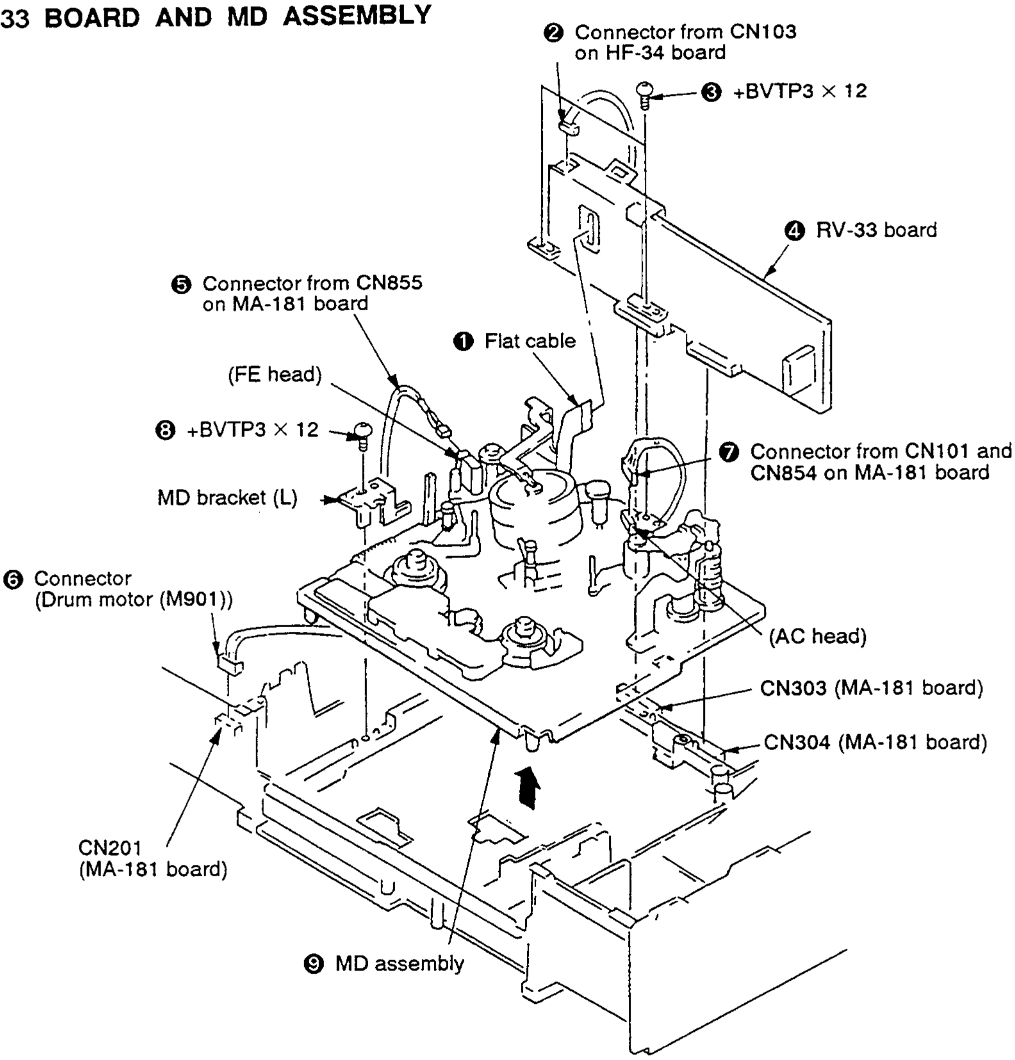
## 2-4. MF-243 BOARD


❷ Two claws
CN402 (MA-181 board)
❶ +BVPB3 × 12
MF-243 board
Ⓐ
Ⓑ
❸ Disconnect connector as shown above and remove MF-243 board.

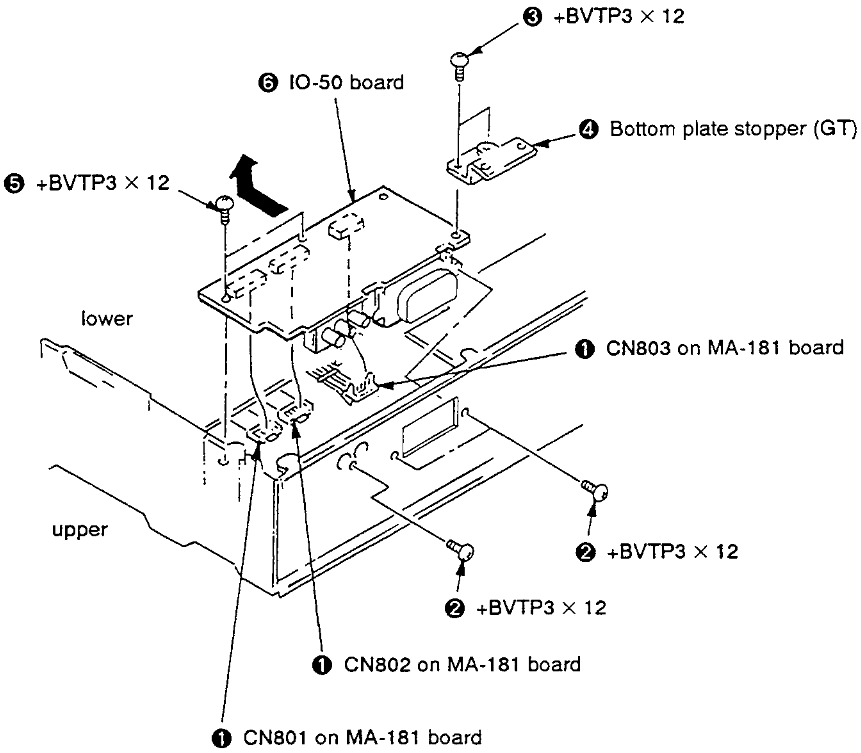
## 2-5. CASSETTE COMPARTMENT ASSEMBLY


❷ +BVTP3 × 12
❹ Cassette compartment assembly
❸ +BVTP3 × 10
❶ Connector from CN005 on MA-181 board

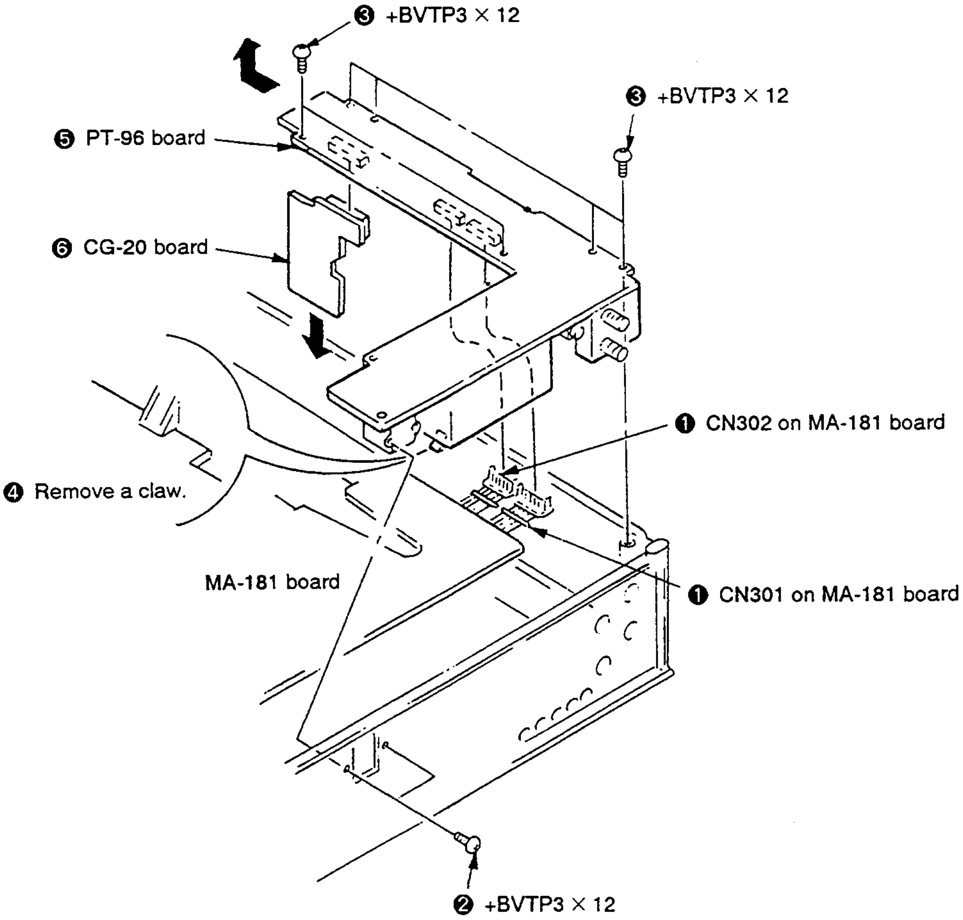
## 2-6. RV-33 BOARD AND MD ASSEMBLY


❷ Connector from CN103 on HF-34 board
❸ +BVTP3 × 12
❹ RV-33 board
❺ Connector from CN855 on MA-181 board
❶ Flat cable
(FE head)
❽ +BVTP3 × 12
❼ Connector from CN101 and CN854 on MA-181 board
MD bracket (L)
❻ Connector (Drum motor (M901))
(AC head)
CN303 (MA-181 board)
CN304 (MA-181 board)
CN201 (MA-181 board)
❾ MD assembly

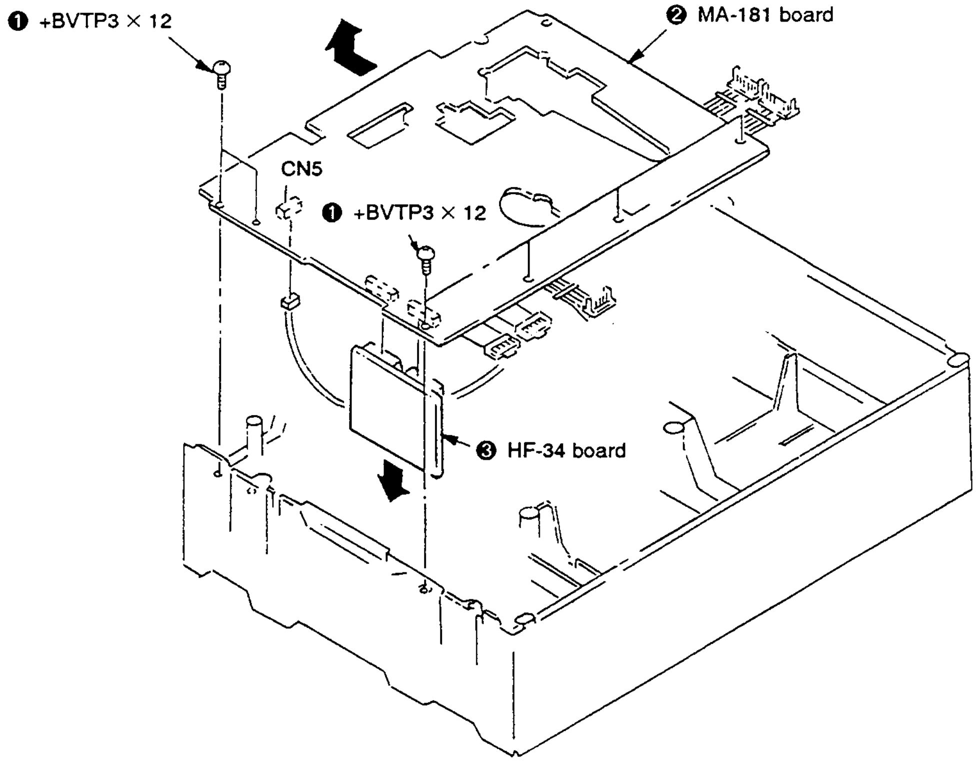
## 2-7. IO-50 BOARD


❸ +BVTP3 × 12
❻ IO-50 board
❹ Bottom plate stopper (GT)
❺ +BVTP3 × 12
lower
❶ CN803 on MA-181 board
upper
❷ +BVTP3 × 12
❷ +BVTP3 × 12
❶ CN802 on MA-181 board
❶ CN801 on MA-181 board

## 2-8. PT-96 AND CG-20 BOARDS


❸ +BVTP3 × 12
❸ +BVTP3 × 12
❺ PT-96 board
❻ CG-20 board
❶ CN302 on MA-181 board
❹ Remove a claw.
MA-181 board
❶ CN301 on MA-181 board
❷ +BVTP3 × 12

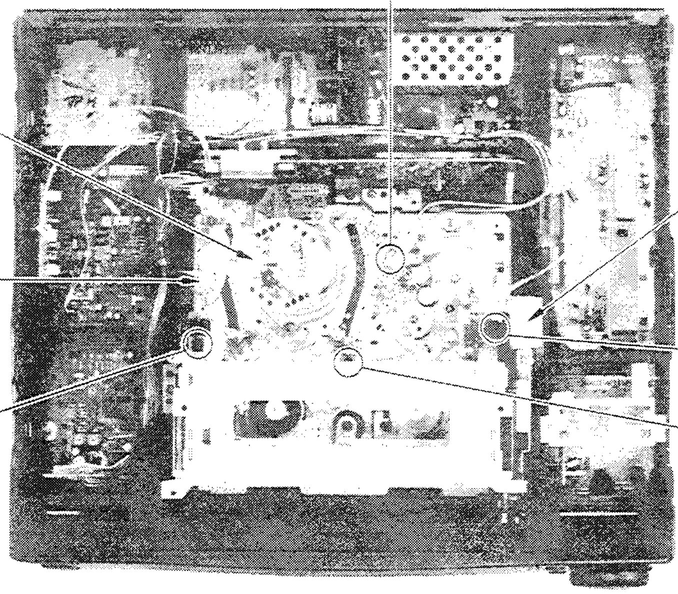
## 2-9. MA-181 AND HF-34 BOARDS



❶ +BVTP3 × 12
❷ MA-181 board
CN5
❶ +BVTP3 × 12
❸ HF-34 board

## 2-10. INTERNAL VIEWS

– Top Side –



ACE head block ass'y
A-6761-129-C

Upper drum ass'y
DZR-60-R 1-550-872-11
Lower drum ass'y
DZL-60A-R 1-550-873-11

M904
Loading motor
X-3727-784-1

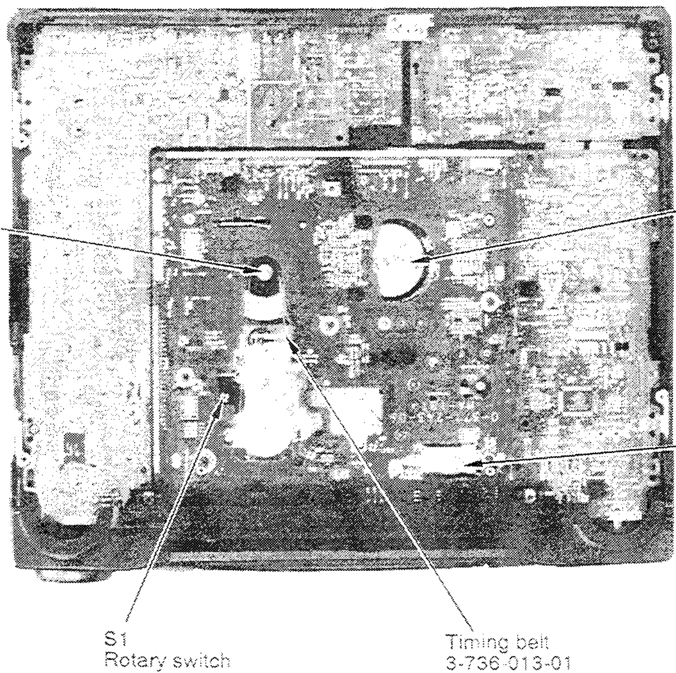
FE head
1-543-647-11

Q001
Tape top sensor
8-729-926-31

Q002
Tape end sensor
8-729-926-31

D001
Tape top/end LED
8-719-985-00

– Bottom Side –



M902
Capstan motor
8-835-489-11

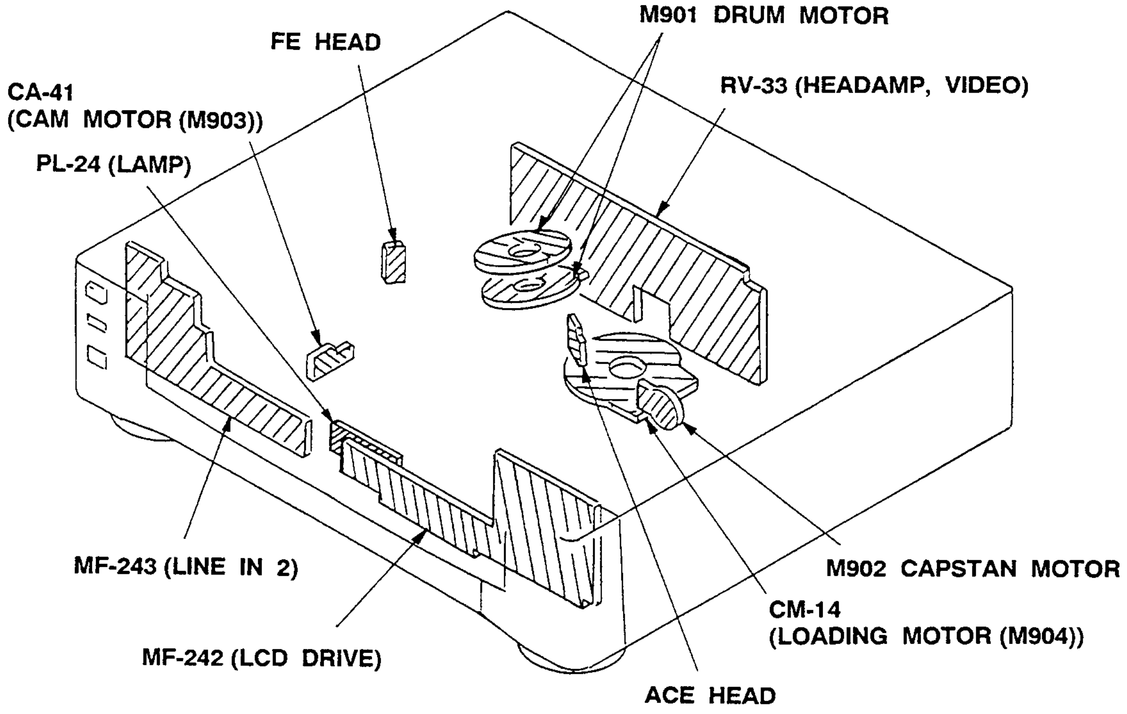
M901
Drum motor

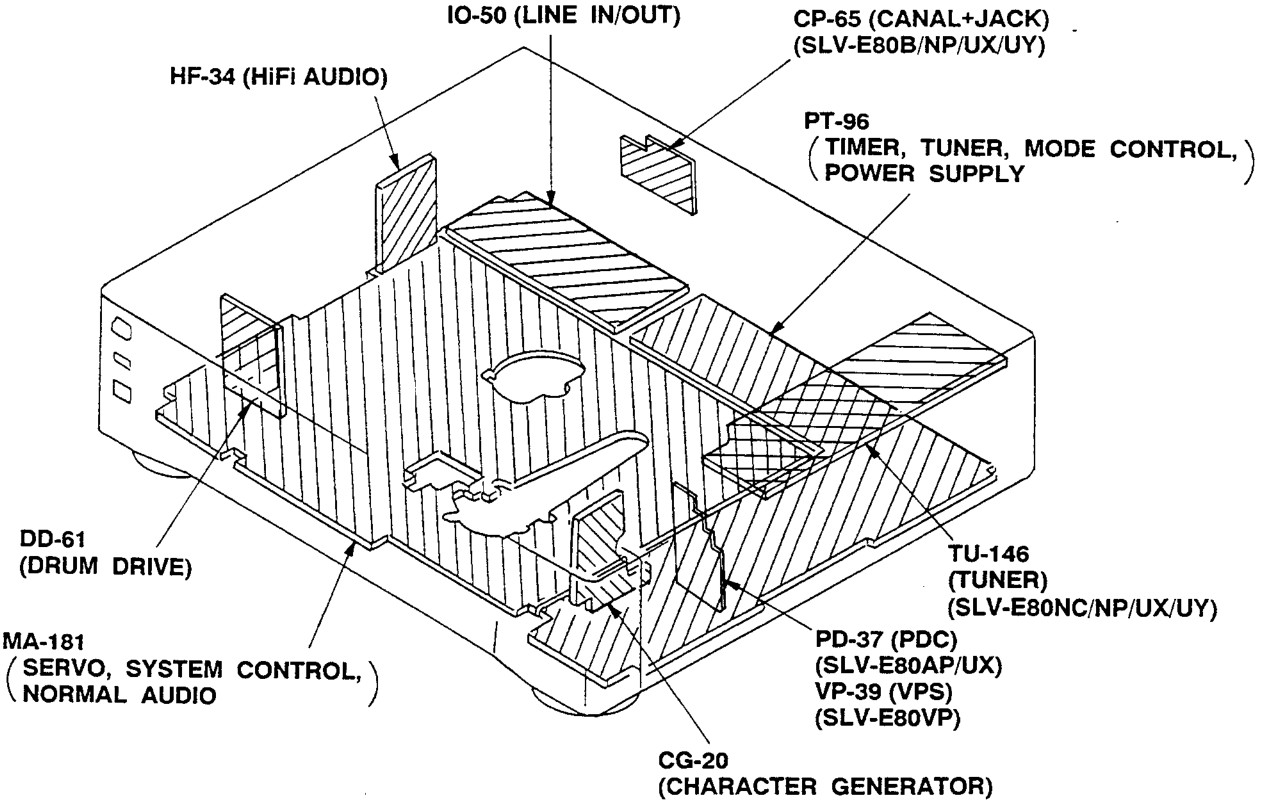
M903
Cam motor
X-3733-302-1

S1
Rotary switch
1-571-920-11

Timing belt
3-736-013-01

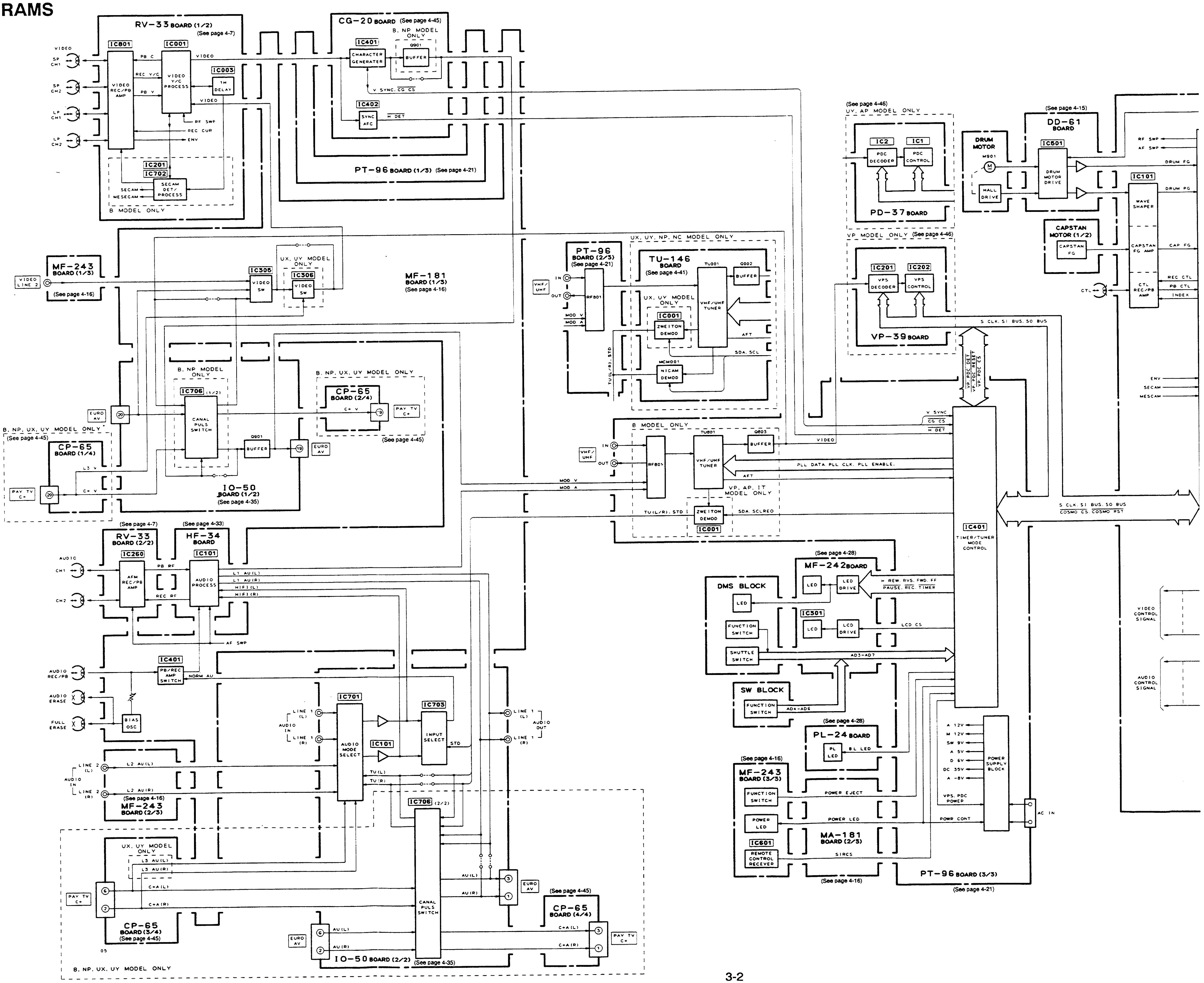
## 2-11. CIRCUIT BOARDS LOCATION

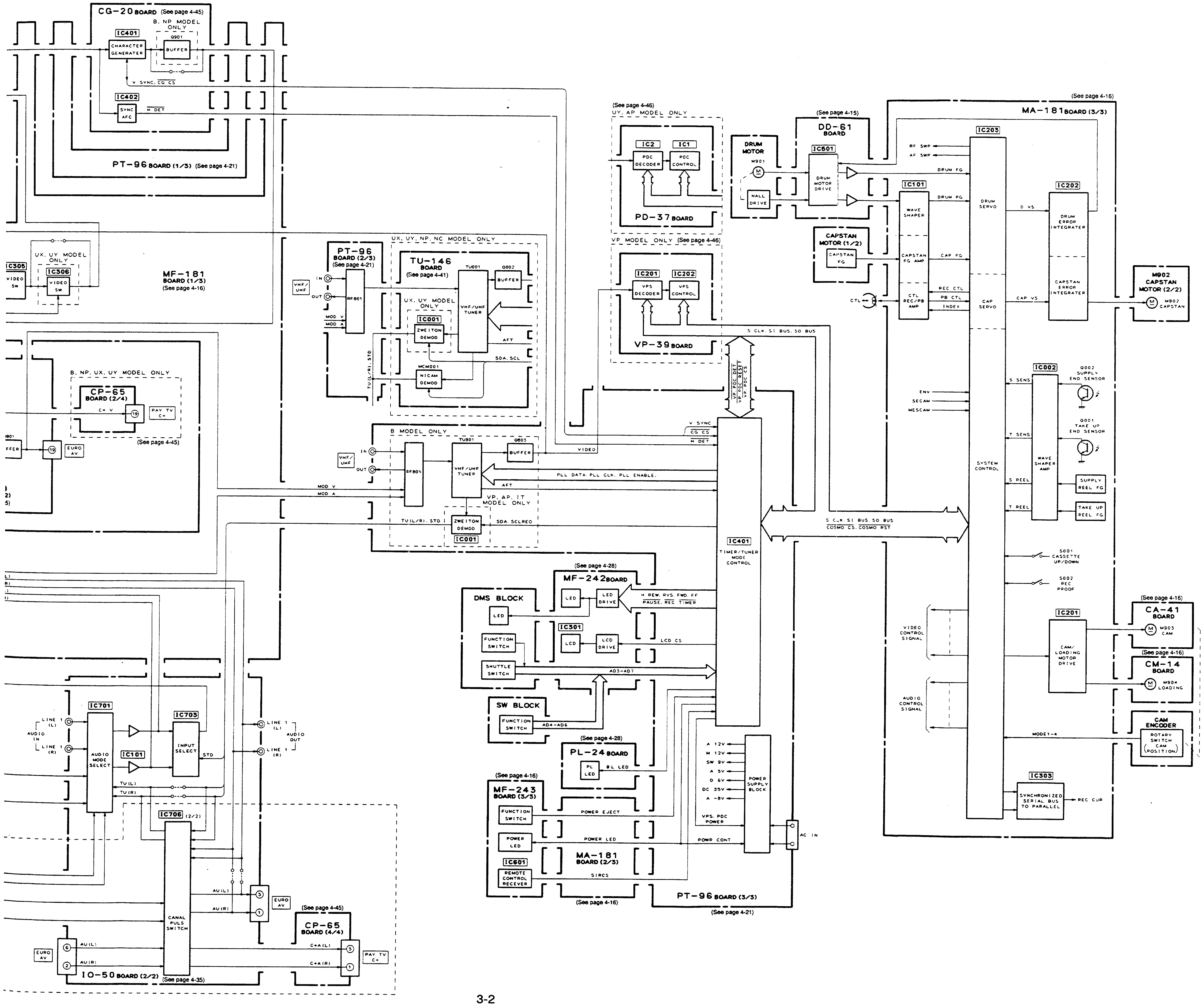

FE HEAD
M901 DRUM MOTOR
CA-41
(CAM MOTOR (M903))
RV-33 (HEADAMP, VIDEO)
PL-24 (LAMP)
MF-243 (LINE IN 2)
M902 CAPSTAN MOTOR
CM-14
(LOADING MOTOR (M904))
MF-242 (LCD DRIVE)
ACE HEAD


IO-50 (LINE IN/OUT)
CP-65 (CANAL+JACK)
(SLV-E80B/NP/UX/UY)
HF-34 (HiFi AUDIO)
PT-96
(TIMER, TUNER, MODE CONTROL,
POWER SUPPLY)
DD-61
(DRUM DRIVE)
TU-146
(TUNER)
(SLV-E80NC/NP/UX/UY)
MA-181
(SERVO, SYSTEM CONTROL,
NORMAL AUDIO)
PD-37 (PDC)
(SLV-E80AP/UX)
VP-39 (VPS)
(SLV-E80VP)
CG-20
(CHARACTER GENERATOR)

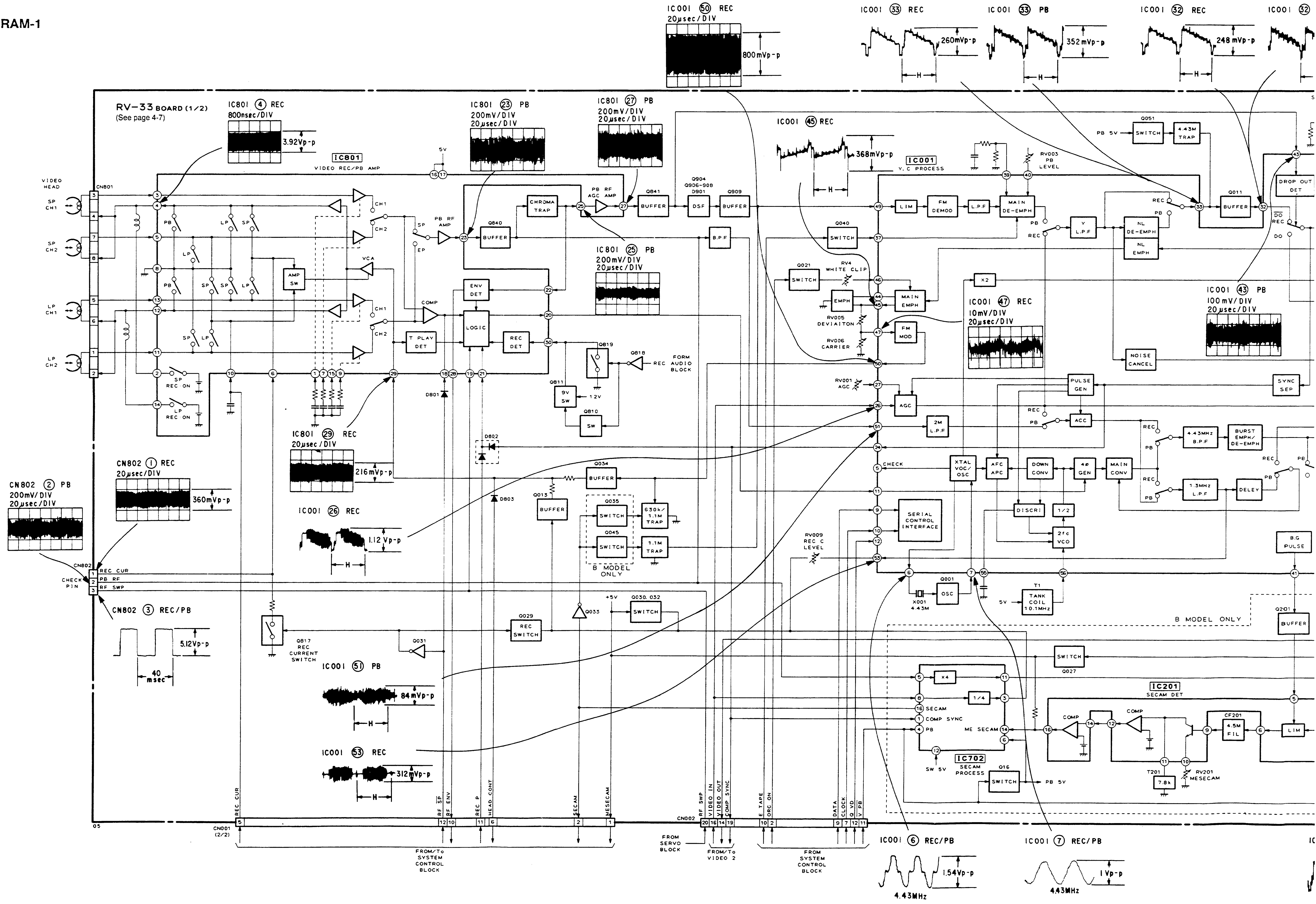
# SECTION 3
# BLOCK DIAGRAMS

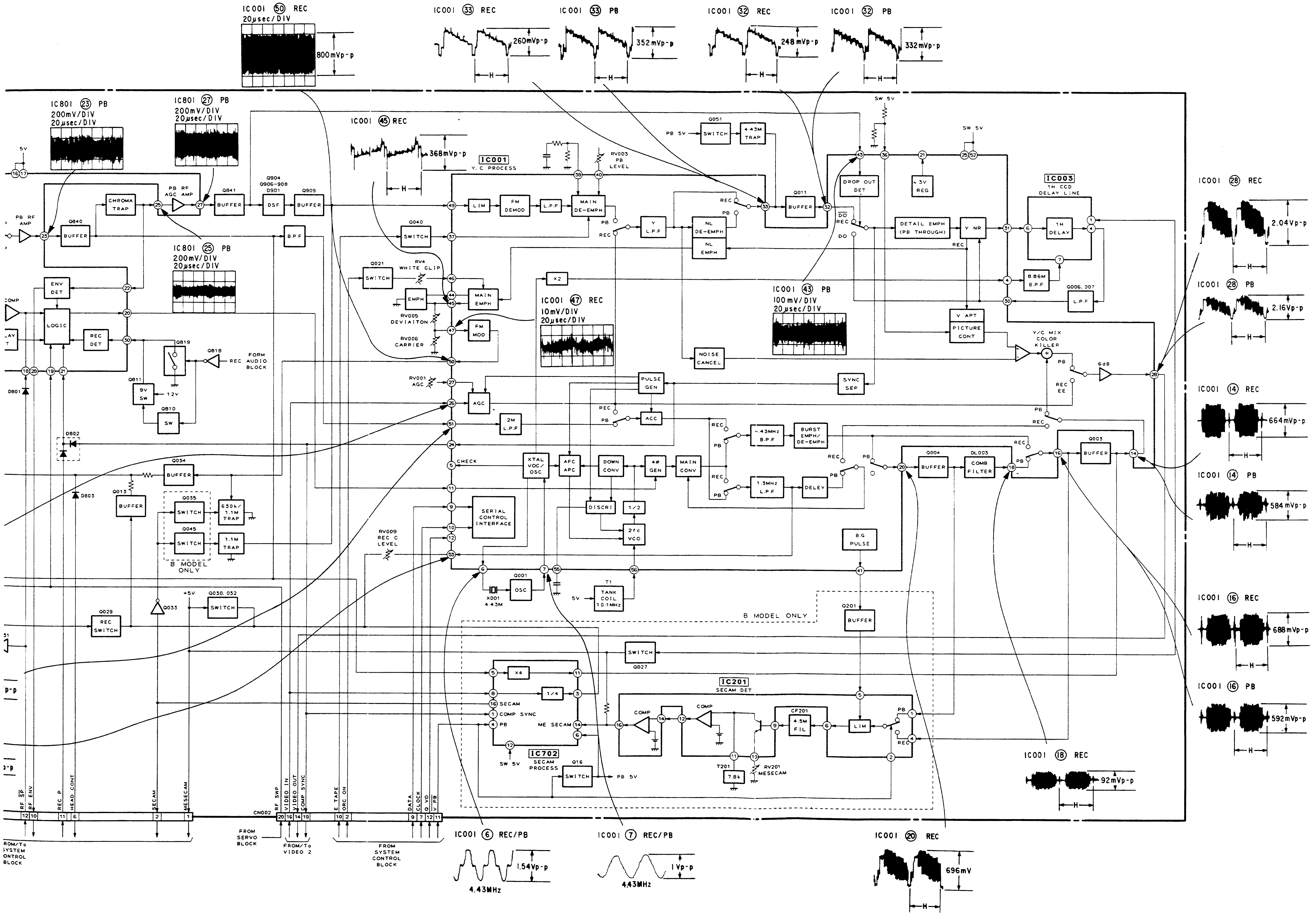
## 3-1. OVERALL BLOCK DIAGRAM


RV-33 BOARD (1/2) (See page 4-7)
IC801
VIDEO REC/PB AMP
IC001
VIDEO Y/C PROCESS
IC003
1H DELAY
VIDEO SP CH1
SP CH2
LP CH1
LP CH2
PB C
REC Y/C
PB Y
VIDEO
RF SWP
REC CUR
ENV
IC201
IC702
SECAM DET/PROCESS
SECAM
MESECAM
B MODEL ONLY
CG-20 BOARD (See page 4-45)
IC401
CHARACTER GENERATER
B, NP MODEL ONLY
Q901
BUFFER
V SYNC, CG CS
IC402
SYNC AFC
H DET
PT-96 BOARD (1/3) (See page 4-21)
MF-243 BOARD (1/3) (See page 4-16)
VIDEO LINE 2
IC305
VIDEO SW
UX, UY MODEL ONLY
IC306
VIDEO SW
MF-181 BOARD (1/3) (See page 4-16)
B, NP MODEL ONLY
IC706 (1/2)
CANAL PULS SWITCH
Q901
BUFFER
EURO AV
B, NP, UX, UY MODEL ONLY
CP-65 BOARD (2/4)
PAY TV C+
(See page 4-45)
CP-65 BOARD (1/4)
L3 V
C+ V
IO-50 BOARD (1/2) (See page 4-35)
RV-33 BOARD (2/2) (See page 4-7)
IC260
AFM REC/PB AMP
HF-34 BOARD (See page 4-33)
IC101
AUDIO PROCESS
AUDIO CH1
CH2
PB RF
REC RF
L1 AU(L)
L1 AU(R)
HIFI(L)
HIFI(R)
AF SWP
IC401
PB/REC AMP SWITCH
NORM AU
AUDIO REC/PB
AUDIO ERASE
FULL ERASE
BIAS OSC
IC701
AUDIO MODE SELECT
IC101
IC703
INPUT SELECT
STD
LINE 1 (L)
LINE 1 (R)
AUDIO IN
AUDIO OUT
LINE 2 (L)
LINE 2 (R)
L2 AU(L)
L2 AU(R)
(See page 4-16)
MF-243 BOARD (2/3)
TU(L)
TU(R)
IC706 (2/2)
CANAL PULS SWITCH
UX, UY MODEL ONLY
L3 AU(L)
L3 AU(R)
C+A(L)
C+A(R)
CP-65 BOARD (3/4) (See page 4-45)
AU(L)
AU(R)
CP-65 BOARD (4/4) (See page 4-45)
IO-50 BOARD (2/2) (See page 4-35)
B, NP, UX, UY MODEL ONLY
PT-96 BOARD (2/3) (See page 4-21)
VHF/UHF
IN
OUT
RF801
MOD V
MOD A
TU(L/R), STD
UX, UY, NP, NC MODEL ONLY
TU-146 BOARD (See page 4-41)
TU001
VHF/UHF TUNER
Q002
BUFFER
UX, UY MODEL ONLY
IC001
ZWEITON DEMOD
AFT
SDA, SCL
MCM001
NICAM DEMOD
B MODEL ONLY
TU801
VHF/UHF TUNER
Q803
BUFFER
RF801
VIDEO
PLL DATA, PLL CLK, PLL ENABLE
AFT
VP, AP, IT MODEL ONLY
ZWEITON DEMOD
IC001
SDA, SCLREO
(See page 4-46)
UY, AP MODEL ONLY
IC2
PDC DECODER
IC1
PDC CONTROL
PD-37 BOARD
VP MODEL ONLY (See page 4-46)
IC201
VPS DECODER
IC202
VPS CONTROL
VP-39 BOARD
S CLK, SI BUS, SO BUS
VP, PDC DET
VP, PDC RESET
VP, PDC CS
DRUM MOTOR
M901
HALL DRIVE
(See page 4-15)
DD-61 BOARD
IC601
DRUM MOTOR DRIVE
CAPSTAN MOTOR (1/2)
CAPSTAN FG
IC101
WAVE SHAPER
CAPSTAN FG AMP
CTL REC/PB AMP
CTL
RF SWP
AF SWP
DRUM FG
DRUM PG
CAP FG
REC CTL
PB CTL
INDEX
ENV
SECAM
MESECAM
V SYNC
CG CS
H DET
IC401
TIMER/TUNER MODE CONTROL
S CLK, SI BUS, SO BUS
COSMO CS, COSMO RST
VIDEO CONTROL SIGNAL
AUDIO CONTROL SIGNAL
(See page 4-28)
MF-242 BOARD
LED
LED DRIVE
H REW, RVS, FWD, FF
PAUSE, REC, TIMER
DMS BLOCK
LED
FUNCTION SWITCH
SHUTTLE SWITCH
IC501
LCD
LCD DRIVE
LCD CS
AD3-AD7
SW BLOCK
FUNCTION SWITCH
AD4-AD6
(See page 4-28)
PL-24 BOARD
PL LED
BL LED
(See page 4-16)
MF-243 BOARD (3/3)
FUNCTION SWITCH
POWER EJECT
POWER LED
POWER LED
IC601
REMOTE CONTROL RECEVER
MA-181 BOARD (2/3)
SIRCS
(See page 4-16)
PT-96 BOARD (3/3) (See page 4-21)
A 12V
M 12V
SW 9V
A 5V
D 6V
DC 35V
A -8V
VPS, PDC POWER
POWR CONT
POWER SUPPLY BLOCK
AC IN

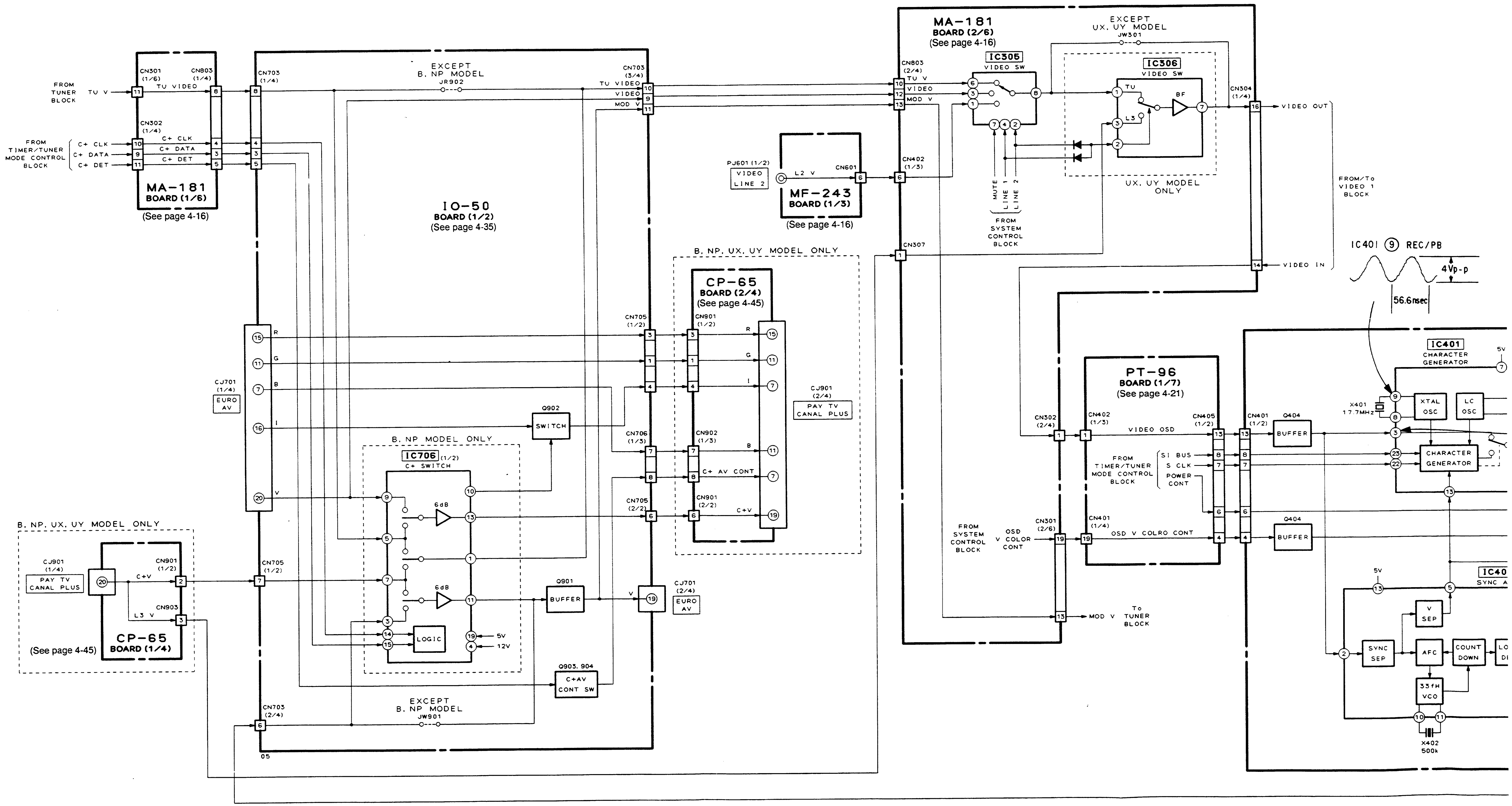

CG-20 BOARD (See page 4-45)
B, NP MODEL ONLY
IC401
CHARACTER GENERATER
Q901
BUFFER
V SYNC, CG CS
IC402
SYNC AFC
H DET
PT-96 BOARD (1/3) (See page 4-21)
UX, UY MODEL ONLY
IC305
VIDEO SW
IC306
VIDEO SW
MF-181 BOARD (1/3) (See page 4-16)
B, NP, UX, UY MODEL ONLY
CP-65 BOARD (2/4)
C+ V
19
PAY TV C+
(See page 4-45)
BUFFER
19
EURO AV
PT-96 BOARD (2/3) (See page 4-21)
VHF/UHF
IN
OUT
RF801
MOD V
MOD A
UX, UY, NP, NC MODEL ONLY
TU-146 BOARD (See page 4-41)
TU001
Q002
BUFFER
VHF/UHF TUNER
UX, UY MODEL ONLY
IC001
ZWEITON DEMOD
AFT
SDA, SCL
MCM001
NICAM DEMOD
TU(L/R), STD
B MODEL ONLY
TU801
Q803
BUFFER
VIDEO
PLL DATA, PLL CLK, PLL ENABLE,
AFT
VP, AP, IT MODEL ONLY
TU(L/R), STD
ZWEITON DEMOD
IC001
SDA, SCLREO
(See page 4-46)
UY, AP MODEL ONLY
IC2
IC1
PDC DECODER
PDC CONTROL
PD-37 BOARD
VP MODEL ONLY (See page 4-46)
IC201
IC202
VPS DECODER
VPS CONTROL
VP-39 BOARD
S CLK, SI BUS, SO BUS
VP, PDC DET
VP, PDC RESET
VP, PDC CS
V SYNC
CG CS
H DET
DRUM MOTOR
M901
HALL DRIVE
(See page 4-15)
DD-61 BOARD
IC501
DRUM MOTOR DRIVE
CAPSTAN MOTOR (1/2)
CAPSTAN FG
CTL
(See page 4-16)
MA-181 BOARD (3/3)
IC203
RF SWP
AF SWP
DRUM FG
DRUM PG
IC101
WAVE SHAPER
CAPSTAN FG AMP
CTL REC/PB AMP
CAP FG
REC CTL
PB CTL
INDEX
DRUM SERVO
CAP SERVO
D VS
CAP VS
IC202
DRUM ERROR INTEGRATER
CAPSTAN ERROR INTEGRATER
M902 CAPSTAN MOTOR (2/2)
M902 CAPSTAN
ENV
SECAM
MESCAM
SYSTEM CONTROL
IC002
S SENS
T SENS
S REEL
T REEL
WAVE SHAPER AMP
Q002 SUPPLY END SENSOR
Q001 TAKE UP END SENSOR
SUPPLY REEL FG
TAKE UP REEL FG
S CLK, SI BUS, SO BUS
COSMO CS, COSMO RST
IC401
TIMER/TUNER MODE CONTROL
S001 CASSETTE UP/DOWN
S002 REC PROOF
VIDEO CONTROL SIGNAL
AUDIO CONTROL SIGNAL
IC201
CAM/LOADING MOTOR DRIVE
(See page 4-16)
CA-41 BOARD
M903 CAM
(See page 4-16)
CM-14 BOARD
M904 LOADING
CAM ENCODER
ROTARY SWITCH (CAM POSITION)
MODE1-4
IC303
SYNCHRONIZED SERIAL BUS TO PARALLEL
REC CUR
(See page 4-28)
MF-242 BOARD
LED
LED DRIVE
H REW, RVS, FWD, FF
PAUSE, REC TIMER
DMS BLOCK
LED
FUNCTION SWITCH
SHUTTLE SWITCH
IC301
LCD
LCD DRIVE
LCD CS
AD3-AD7
SW BLOCK
FUNCTION SWITCH
AD4-AD6
(See page 4-28)
PL-24 BOARD
PL LED
BL LED
(See page 4-16)
MF-243 BOARD (3/3)
FUNCTION SWITCH
POWER EJECT
POWER LED
POWER LED
IC601
REMOTE CONTROL RECEVER
MA-181 BOARD (2/3)
SIRCS
(See page 4-16)
PT-96 BOARD (3/3)
(See page 4-21)
A 12V
M 12V
SW 9V
A 5V
D 6V
DC 35V
A -8V
VPS, PDC POWER
POWR CONT
POWER SUPPLY BLOCK
AC IN
IC701
LINE 1 (L)
LINE 1 (R)
AUDIO IN
AUDIO MODE SELECT
IC101
IC703
INPUT SELECT
STD
TU(L)
TU(R)
LINE 1 (L)
LINE 1 (R)
AUDIO OUT
IC706 (2/2)
CANAL PULS SWITCH
AU(L)
AU(R)
3
1
EURO AV
(See page 4-45)
CP-65 BOARD (4/4)
C+A(L)
C+A(R)
3
1
PAY TV C+
EURO AV
6
2
AU(L)
AU(R)
IO-50 BOARD (2/2)
(See page 4-35)

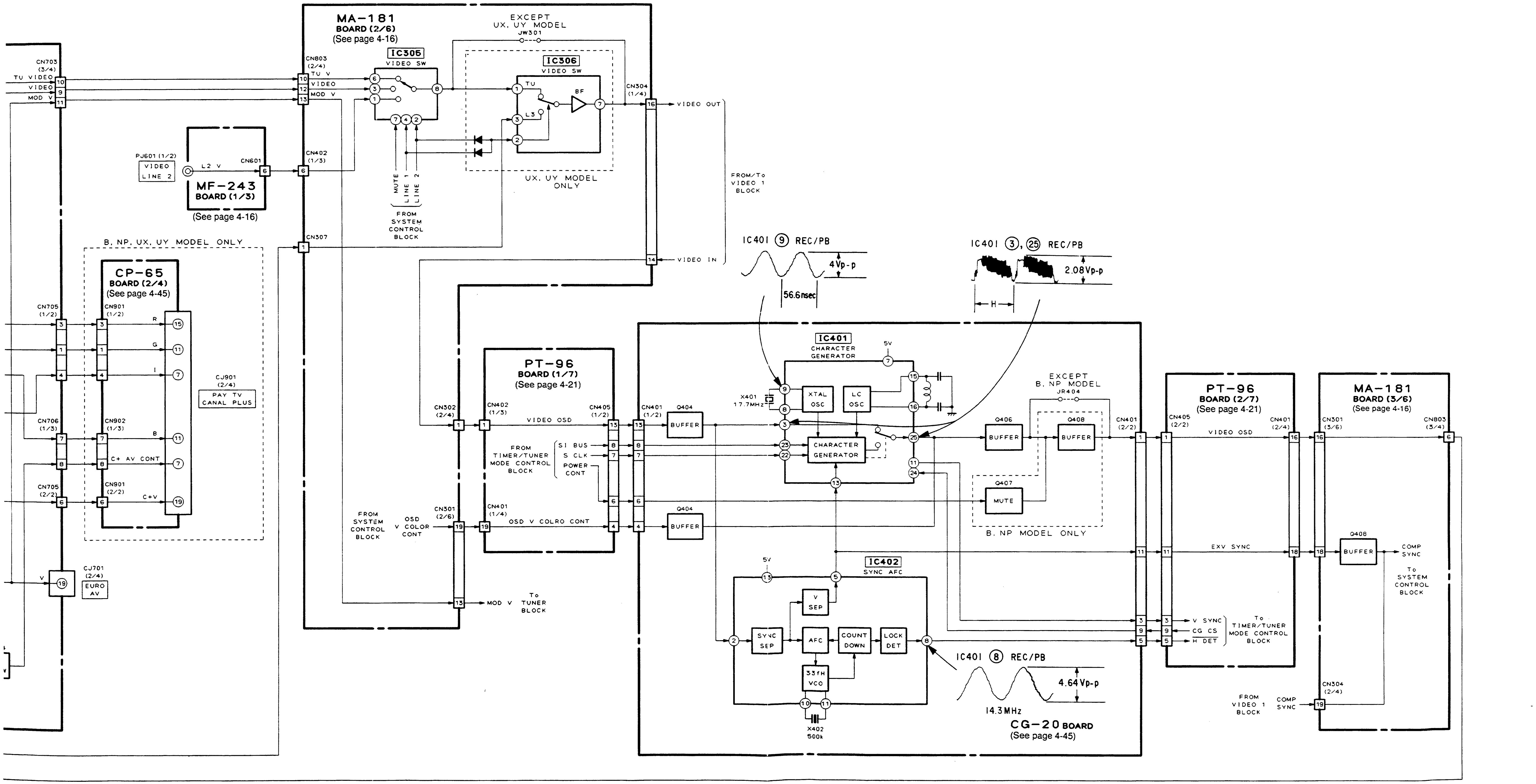
## 3-2. VIDEO BLOCK DIAGRAM-1


IC001 (50) REC
20μsec/DIV
800mVp-p
IC001 (33) REC
260mVp-p
IC001 (33) PB
352mVp-p
IC001 (32) REC
248mVp-p
IC001 (32)
H
RV-33 BOARD (1/2)
(See page 4-7)
IC801 (4) REC
800nsec/DIV
3.92Vp-p
IC801 (23) PB
200mV/DIV
20μsec/DIV
IC801 (27) PB
200mV/DIV
20μsec/DIV
IC001 (45) REC
368mVp-p
IC801
VIDEO REC/PB AMP
IC001
Y, C PROCESS
VIDEO HEAD
SP CH1
SP CH2
LP CH1
LP CH2
CN801
PB
LP
SP
REC ON
AMP SW
VCA
CH1
CH2
PB RF AMP
EP
COMP
T PLAY DET
ENV DET
LOGIC
REC DET
BUFFER
CHROMA TRAP
PB RF AGC AMP
Q840
Q841
Q904
Q906-908
Q901
Q909
DSF
B.P.F
IC801 (25) PB
200mV/DIV
20μsec/DIV
Q819
Q818
Q811
Q810
9V SW
SW
12V
FORM AUDIO BLOCK
REC
D801
D802
D803
IC801 (29) REC
20μsec/DIV
216mVp-p
CN802 (1) REC
20μsec/DIV
360mVp-p
CN802 (2) PB
200mV/DIV
20μsec/DIV
IC001 (26) REC
1.12Vp-p
Q834
Q013
Q035
Q045
SWITCH
630k/1.1M TRAP
1.1M TRAP
B MODEL ONLY
CN802
REC CUR
PB RF
RF SWP
CHECK PIN
CN802 (3) REC/PB
5.12Vp-p
40 msec
Q817 REC CURRENT SWITCH
Q031
Q029 REC SWITCH
+5V
Q033
Q030, 032
IC001 (51) PB
84mVp-p
IC001 (53) REC
312mVp-p
REC CUR
RF SP
RF ENV
REC P
HEAD CONT
SECAM
MESECAM
CN001 (2/2)
FROM/TO SYSTEM CONTROL BLOCK
FROM SERVO BLOCK
CN002
RF SWP
VIDEO IN
VIDEO OUT
COMP SYNC
E TAPE
ORC ON
FROM/TO VIDEO 2
DATA
CLOCK
Q VD
V PB
FROM SYSTEM CONTROL BLOCK
Q040
Q021
RV4 WHITE CLIP
EMPH
MAIN EMPH
RV005 DEVIAITON
RV006 CARRIER
FM MOD
IC001 (47) REC
10mV/DIV
20μsec/DIV
RV001 AGC
AGC
2M L.P.F
CHECK
SERIAL CONTROL INTERFACE
RV009 REC C LEVEL
XTAL VCO/OSC
AFC APC
DOWN CONV
4φ GEN
MAIN CONV
DISCRI
1/2
2fc VCO
X001 4.43M
Q001 OSC
T1 TANK COIL 10.1MHz
5V
LIM
FM DEMOD
L.P.F
MAIN DE-EMPH
RV003 PB LEVEL
PB 5V
Q051
4.43M TRAP
Y L.P.F
NL DE-EMPH
NL EMPH
Q011
DROP OUT DET
DO
NOISE CANCEL
x2
IC001 (43) PB
100mV/DIV
20μsec/DIV
PULSE GEN
ACC
SYNC SEP
4.43MHz B.P.F
BURST EMPH/DE-EMPH
1.3MHz L.P.F
DELEY
B.G PULSE
Q201 BUFFER
B MODEL ONLY
SWITCH
Q027
x4
1/4
SECAM
COMP SYNC
ME SECAM
IC702
SECAM PROCESS
SW 5V
Q16
IC201
SECAM DET
COMP
CF201
4.5M FIL
T201 7.8k
RV201 MESECAM
IC001 (6) REC/PB
1.54Vp-p
4.43MHz
IC001 (7) REC/PB
1Vp-p
4.43MHz

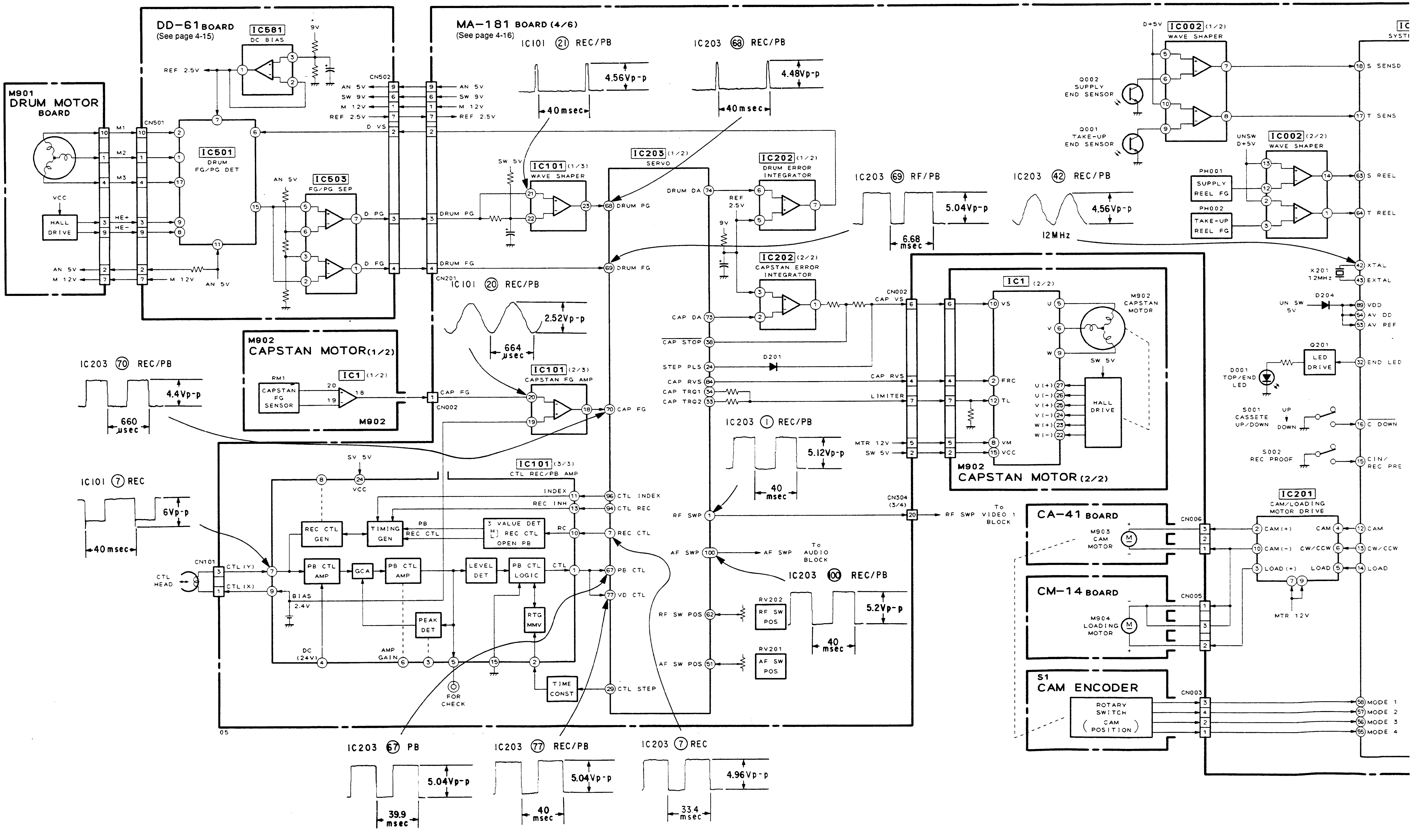

IC001 (50) REC
20μsec/DIV
800mVp-p
IC001 (33) REC
260mVp-p
IC001 (33) PB
352mVp-p
IC001 (32) REC
248mVp-p
IC001 (32) PB
332mVp-p
H
IC801 (23) PB
200mV/DIV
20μsec/DIV
IC801 (27) PB
200mV/DIV
20μsec/DIV
IC001 (45) REC
368mVp-p
IC801 (25) PB
200mV/DIV
20μsec/DIV
IC001 (47) REC
10mV/DIV
20μsec/DIV
IC001 (43) PB
100mV/DIV
20μsec/DIV
IC001
Y.C PROCESS
IC003
1H CCD
DELAY LINE
IC201
SECAM DET
IC702
SECAM
PROCESS
PB RF AMP
CHROMA TRAP
PB RF AGC AMP
Q841
BUFFER
Q904
Q906-908
D901
DSF
Q909
BUFFER
Q840
BUFFER
B.P.F
ENV DET
LOGIC
REC DET
Q819
Q818
FORM REC AUDIO BLOCK
Q811
9V SW
12V
Q810
SW
D801
D802
D803
Q034
BUFFER
Q013
BUFFER
Q035
SWITCH
630k/1.1M TRAP
Q045
SWITCH
1.1M TRAP
B MODEL ONLY
Q033
+5V
Q030, 032
SWITCH
Q029
REC SWITCH
Q040
SWITCH
Q021
SWITCH
RV4
WHITE CLIP
EMPH
MAIN EMPH
RV005
DEVIAITON
RV006
CARRIER
FM MOD
RV001
AGC
AGC
2M L.P.F
CHECK
XTAL VCO/OSC
AFC APC
DOWN CONV
4θ GEN
MAIN CONV
DISCRI
1/2
2fc VCO
SERIAL CONTROL INTERFACE
RV009
REC C
LEVEL
Q001
OSC
X001
4.43M
T1
TANK COIL
10.1MHz
5V
LIM
FM DEMOD
L.P.F
MAIN DE-EMPH
RV003
PB LEVEL
Y L.P.F
NL DE-EMPH
NL EMPH
×2
NOISE CANCEL
PULSE GEN
SYNC SEP
ACC
PB 5V
Q051
SWITCH
4.43M TRAP
Q011
BUFFER
SW 5V
DROP OUT DET
DO
REC
DETAIL EMPH
(PB THROUGH)
Y NR
3V REG
1H DELAY
8.86M B.P.F
Q006, 007
L.P.F
V APT
PICTURE CONT
Y/C MIX
COLOR
KILLER
6dB
EE
4.43MHz B.P.F
BURST EMPH/DE-EMPH
1.3MHz L.P.F
DELEY
Q004
BUFFER
DL003
COMB FILTER
Q003
BUFFER
B.G PULSE
Q201
BUFFER
B MODEL ONLY
SWITCH
Q027
×4
1/4
SECAM
COMP SYNC
PB
ME SECAM
SW 5V
Q16
SWITCH
PB 5V
COMP
CF201
4.5M FIL
LIM
T201
7.8k
RV201
MESECAM
RF SP
RF ENV
REC P
HEAD CONT
SECAM
MESECAM
RF SWP
VIDEO IN
VIDEO OUT
COMP SYNC
E TAPE
ORC ON
DATA
CLOCK
Q VD
V PB
CN002
FROM SERVO BLOCK
FROM/To VIDEO 2
FROM SYSTEM CONTROL BLOCK
FROM/To SYSTEM CONTROL BLOCK
IC001 (28) REC
2.04Vp-p
IC001 (28) PB
2.16Vp-p
IC001 (14) REC
664mVp-p
IC001 (14) PB
584mVp-p
IC001 (16) REC
688mVp-p
IC001 (16) PB
592mVp-p
IC001 (18) REC
92mVp-p
IC001 (6) REC/PB
1.54Vp-p
4.43MHz
IC001 (7) REC/PB
1Vp-p
4.43MHz
IC001 (20) REC
696mV

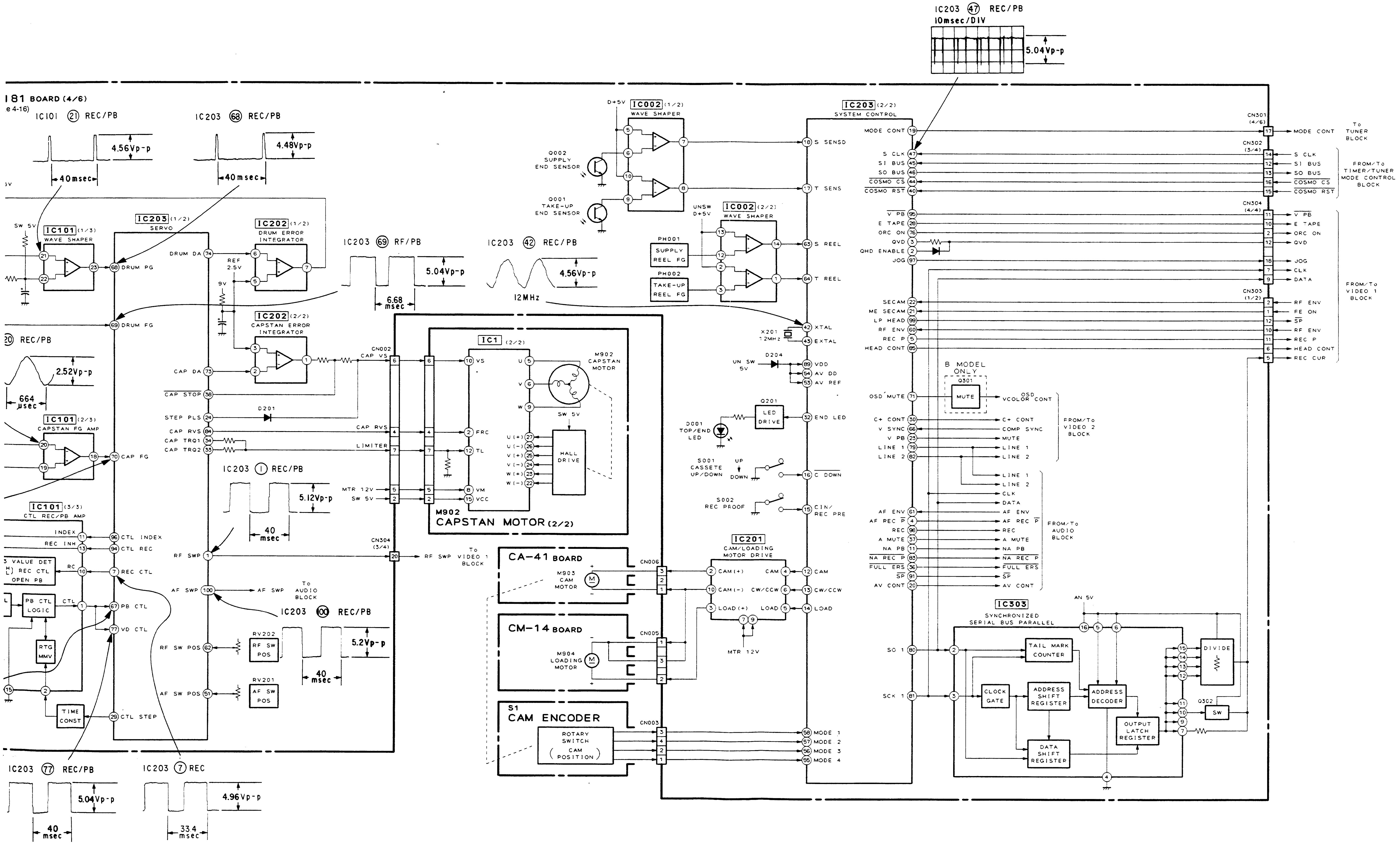
## 3-3. VIDEO BLOCK DIAGRAM-2


MA-181
BOARD (1/6)
(See page 4-16)
FROM TUNER BLOCK
TU V
CN301 (1/6)
CN803 (1/4)
TU VIDEO
CN302 (1/4)
FROM TIMER/TUNER MODE CONTROL BLOCK
C+ CLK
C+ DATA
C+ DET
IO-50
BOARD (1/2)
(See page 4-35)
CN703 (1/4)
EXCEPT B. NP MODEL
JR902
CN703 (3/4)
TU VIDEO
VIDEO
MOD V
CJ701 (1/4)
EURO AV
R
G
B
I
V
Q902
SWITCH
B. NP MODEL ONLY
IC706 (1/2)
C+ SWITCH
6dB
LOGIC
5V
12V
Q901
BUFFER
Q903, 904
C+AV CONT SW
EXCEPT B. NP MODEL
JW901
CN703 (2/4)
CN705 (1/2)
CN706 (1/3)
CN705 (2/2)
CJ701 (2/4)
EURO AV
05
B. NP, UX, UY MODEL ONLY
CJ901 (1/4)
PAY TV CANAL PLUS
CN901 (1/2)
C+V
CN903
L3 V
CP-65
BOARD (1/4)
(See page 4-45)
B. NP, UX, UY MODEL ONLY
CP-65
BOARD (2/4)
(See page 4-45)
CN901 (1/2)
CN902 (1/3)
C+ AV CONT
CN901 (2/2)
C+V
CJ901 (2/4)
PAY TV CANAL PLUS
PJ601 (1/2)
VIDEO LINE 2
L2 V
CN601
MF-243
BOARD (1/3)
(See page 4-16)
MA-181
BOARD (2/6)
(See page 4-16)
CN803 (2/4)
TU V
VIDEO
MOD V
IC305
VIDEO SW
EXCEPT UX, UY MODEL
JW301
IC306
VIDEO SW
TU
L3
BF
UX, UY MODEL ONLY
CN304 (1/4)
VIDEO OUT
VIDEO IN
FROM/TO VIDEO 1 BLOCK
CN402 (1/3)
CN307
MUTE
LINE 1
LINE 2
FROM SYSTEM CONTROL BLOCK
IC401 ⑨ REC/PB
4Vp-p
56.6nsec
PT-96
BOARD (1/7)
(See page 4-21)
CN302 (2/4)
CN402 (1/3)
VIDEO OSD
CN405 (1/2)
FROM TIMER/TUNER MODE CONTROL BLOCK
SI BUS
S CLK
POWER CONT
CN401 (1/4)
OSD V COLRO CONT
FROM SYSTEM CONTROL BLOCK
OSD V COLOR CONT
CN301 (2/6)
MOD V
To TUNER BLOCK
CN401 (1/2)
Q404
BUFFER
Q404
BUFFER
IC401
CHARACTER GENERATOR
5V
X401 17.7MHz
XTAL OSC
LC OSC
CHARACTER GENERATOR
5V
IC40
SYNC A
V SEP
SYNC SEP
AFC
COUNT DOWN
32fH VCO
X402 500k

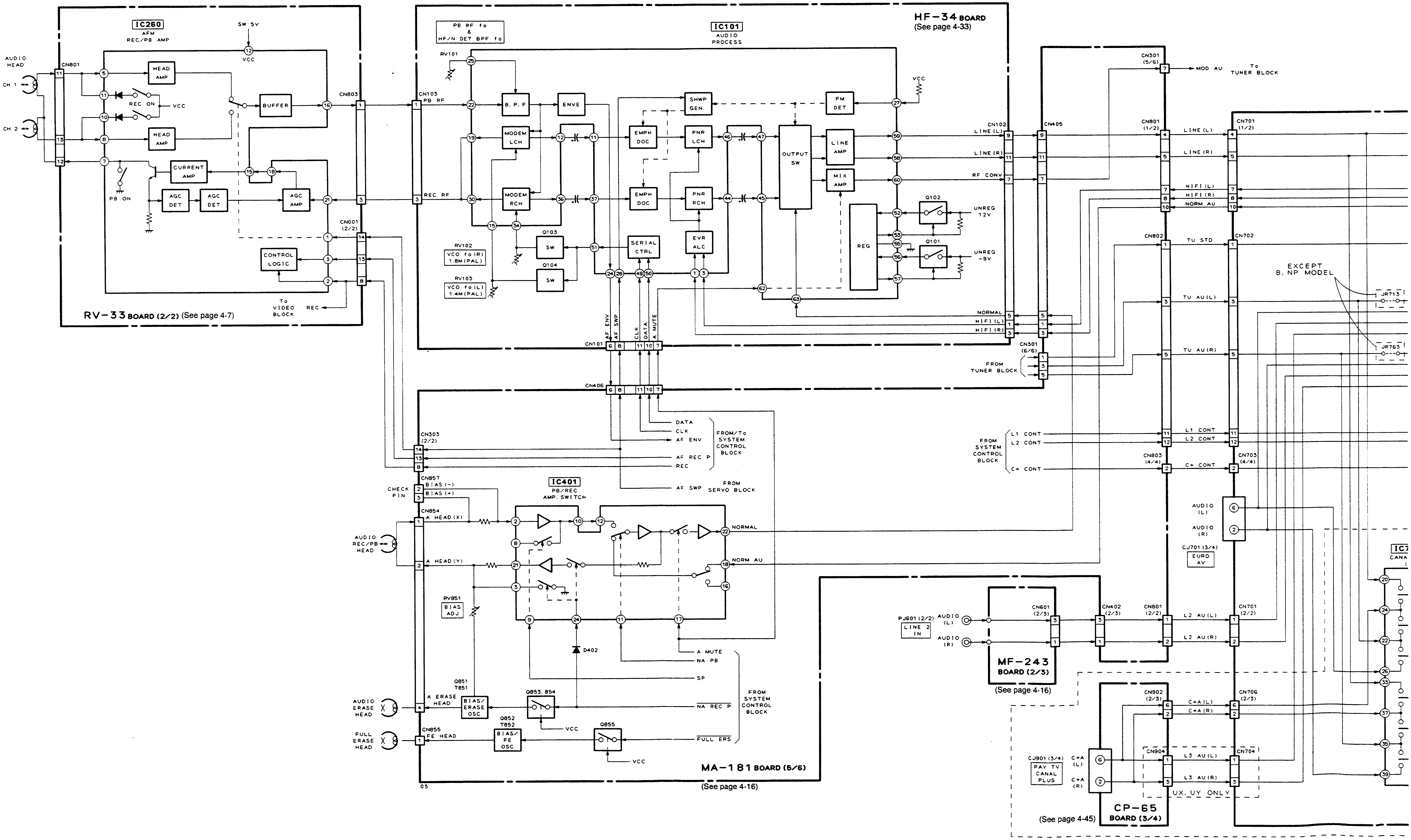

MA-181
BOARD (2/6)
(See page 4-16)
EXCEPT UX, UY MODEL
JW301
IC305
VIDEO SW
IC306
VIDEO SW
TU
BF
L3
UX, UY MODEL ONLY
CN803 (2/4)
TU V
VIDEO
MOD V
CN703 (3/4)
TU VIDEO
VIDEO
MOD V
CN304 (1/4)
VIDEO OUT
VIDEO IN
FROM/TO VIDEO 1 BLOCK
CN402 (1/3)
CN601
PJ601 (1/2)
VIDEO LINE 2
L2 V
MF-243
BOARD (1/3)
(See page 4-16)
MUTE
LINE 1
LINE 2
FROM SYSTEM CONTROL BLOCK
CN307
B, NP, UX, UY MODEL ONLY
CP-65
BOARD (2/4)
(See page 4-45)
CN705 (1/2)
CN901 (1/2)
R
G
I
CJ901 (2/4)
PAY TV CANAL PLUS
CN706 (1/3)
CN902 (1/3)
B
C+ AV CONT
CN705 (2/2)
CN901 (2/2)
C+V
CJ701 (2/4)
EURO AV
V
IC401 ⑨ REC/PB
4Vp-p
56.6nsec
IC401 ③, ㉕ REC/PB
2.08Vp-p
H
PT-96
BOARD (1/7)
(See page 4-21)
CN302 (2/4)
CN402 (1/3)
CN405 (1/2)
VIDEO OSD
FROM TIMER/TUNER MODE CONTROL BLOCK
SI BUS
S CLK
POWER CONT
FROM SYSTEM CONTROL BLOCK
OSD V COLOR CONT
CN301 (2/6)
CN401 (1/4)
OSD V COLRO CONT
MOD V
To TUNER BLOCK
CN401 (1/2)
Q404
BUFFER
IC401
CHARACTER GENERATOR
5V
X401 17.7MHz
XTAL OSC
LC OSC
CHARACTER GENERATOR
EXCEPT B, NP MODEL
JR404
Q406
BUFFER
Q408
BUFFER
Q407
MUTE
B, NP MODEL ONLY
Q404
BUFFER
IC402
SYNC AFC
5V
V SEP
SYNC SEP
AFC
COUNT DOWN
LOCK DET
33fH VCO
X402 500k
IC401 ⑧ REC/PB
4.64Vp-p
14.3MHz
CG-20 BOARD
(See page 4-45)
CN401 (2/2)
PT-96
BOARD (2/7)
(See page 4-21)
CN405 (2/2)
CN401 (2/4)
VIDEO OSD
EXV SYNC
V SYNC
CG CS
H DET
To TIMER/TUNER MODE CONTROL BLOCK
MA-181
BOARD (3/6)
(See page 4-16)
CN301 (3/6)
CN803 (3/4)
Q408
BUFFER
COMP SYNC
To SYSTEM CONTROL BLOCK
CN304 (2/4)
FROM VIDEO 1 BLOCK
COMP SYNC

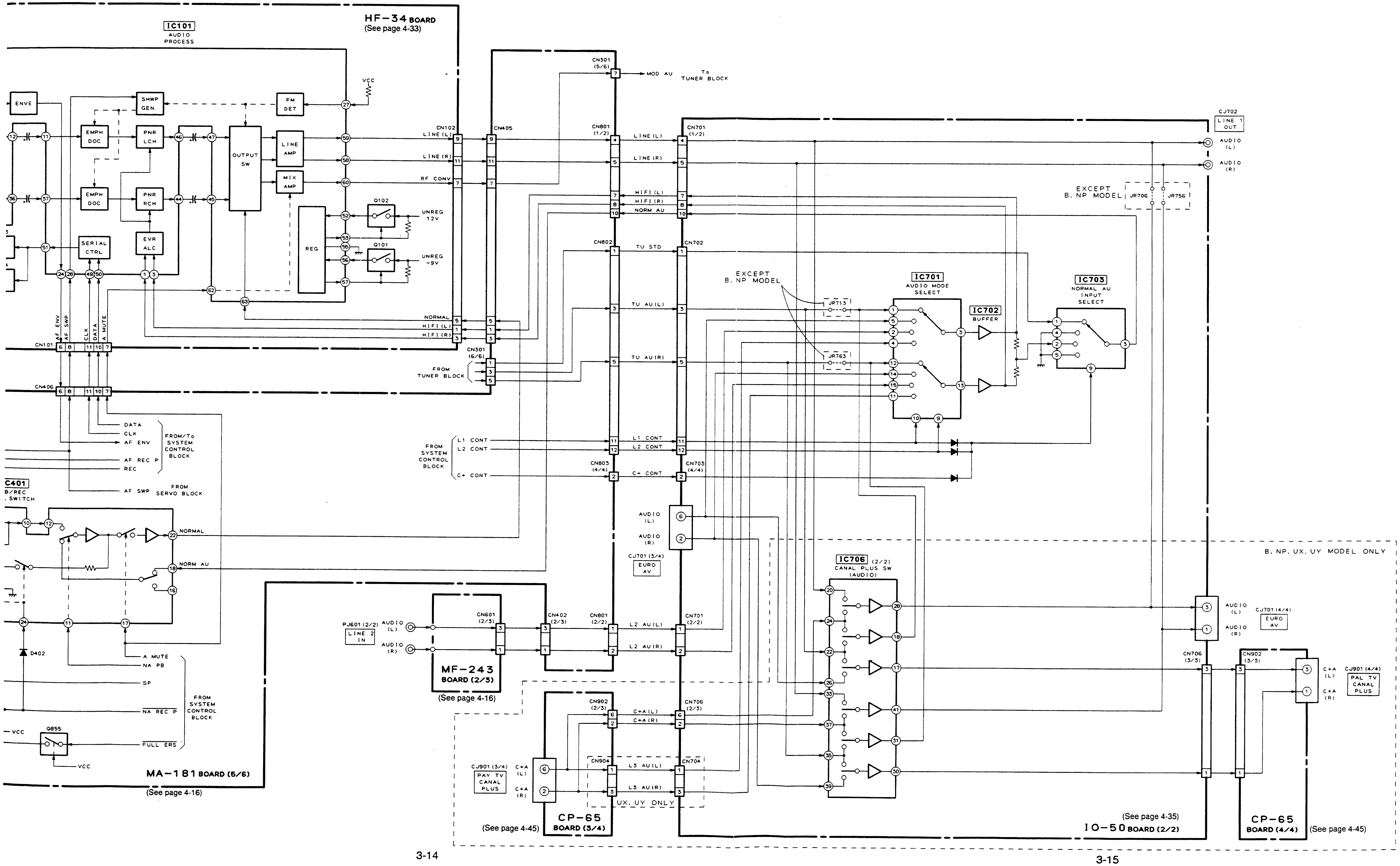
## 3-4. SERVO, SYSTEM CONTROL BLOCK DIAGRAM


DD-61 BOARD
(See page 4-15)
IC581
DC BIAS
9V
REF 2.5V
CN502
AN 5V
SW 9V
M 12V
REF 2.5V
D VS
M901
DRUM MOTOR
BOARD
CN501
M1
M2
M3
HE+
HE−
VCC
HALL DRIVE
AN 5V
M 12V
IC501
DRUM FG/PG DET
AN 5V
IC503
FG/PG SEP
D PG
D FG
MA-181 BOARD (4/6)
(See page 4-16)
IC101 (21) REC/PB
4.56Vp-p
40msec
IC203 (68) REC/PB
4.48Vp-p
40msec
IC101 (1/3)
WAVE SHAPER
SW 5V
DRUM PG
IC203 (1/2)
SERVO
DRUM DA
DRUM FG
IC202 (1/2)
DRUM ERROR INTEGRATOR
REF 2.5V
IC202 (2/2)
CAPSTAN ERROR INTEGRATOR
CAP DA
CAP STOP
STEP PLS
CAP RVS
CAP TRQ1
CAP TRQ2
D201
CN201
IC101 (20) REC/PB
2.52Vp-p
664 µsec
IC101 (2/3)
CAPSTAN FG AMP
CAP FG
CN002
M902
CAPSTAN MOTOR(1/2)
RM1
CAPSTAN FG SENSOR
IC1 (1/2)
M902
IC203 (70) REC/PB
4.4Vp-p
660 µsec
IC101 (7) REC
6Vp-p
40msec
CN101
CTL HEAD
CTL (Y)
CTL (X)
BIAS 2.4V
SV 5V
VCC
IC101 (3/3)
CTL REC/PB AMP
INDEX
REC INH
REC CTL GEN
TIMING GEN
PB
REC CTL
3 VALUE DET
H REC CTL
L OPEN PB
RC
PB CTL AMP
GCA
PB CTL AMP
LEVEL DET
PB CTL LOGIC
CTL
PEAK DET
RTG MMV
DC (24V)
AMP GAIN
FOR CHECK
TIME CONST
CTL INDEX
CTL REC
REC CTL
PB CTL
VD CTL
CTL STEP
RF SWP
AF SWP
To AUDIO BLOCK
IC203 (100) REC/PB
RF SW POS
AF SW POS
RV202
RF SW POS
RV201
AF SW POS
5.2Vp-p
40 msec
IC203 (1) REC/PB
5.12Vp-p
40 msec
IC203 (69) RF/PB
5.04Vp-p
6.68 msec
IC203 (42) REC/PB
4.56Vp-p
12MHz
CN002
CAP VS
CAP RVS
LIMITER
MTR 12V
SW 5V
CN304 (3/4)
RF SWP
To VIDEO 1 BLOCK
IC1 (2/2)
VS
FRC
TL
VM
VCC
U
V
W
U(+)
U(−)
V(+)
V(−)
W(+)
W(−)
SW 5V
HALL DRIVE
M902
CAPSTAN MOTOR
M902
CAPSTAN MOTOR (2/2)
CA-41 BOARD
M903 CAM MOTOR
CN006
CM-14 BOARD
M904 LOADING MOTOR
CN005
S1
CAM ENCODER
ROTARY SWITCH
(CAM POSITION)
CN003
05
IC203 (67) PB
5.04Vp-p
39.9 msec
IC203 (77) REC/PB
5.04Vp-p
40 msec
IC203 (7) REC
4.96Vp-p
33.4 msec
D+5V
IC002 (1/2)
WAVE SHAPER
Q002 SUPPLY END SENSOR
Q001 TAKE-UP END SENSOR
UNSW D+5V
IC002 (2/2)
WAVE SHAPER
PH001 SUPPLY REEL FG
PH002 TAKE-UP REEL FG
X201 12MHz
D204
UN SW 5V
Q201
LED DRIVE
D001 TOP/END LED
S001 CASSETE UP/DOWN
UP
DOWN
S002 REC PROOF
IC201
CAM/LOADING MOTOR DRIVE
CAM(+)
CAM(−)
CAM
CW/CCW
LOAD(+)
LOAD
MTR 12V
IC
SYST
S SENSO
T SENS
S REEL
T REEL
XTAL
EXTAL
VDD
AV DD
AV REF
END LED
C DOWN
CIN/REC PRE
CAM
CW/CCW
LOAD
MODE 1
MODE 2
MODE 3
MODE 4


181 BOARD (4/6)
e 4-16)
IC101 (21) REC/PB
4.56Vp-p
40msec
IC203 (68) REC/PB
4.48Vp-p
40msec
IC203 (47) REC/PB
10msec/DIV
5.04Vp-p
IC101 (1/3) WAVE SHAPER
IC203 (1/2) SERVO
IC202 (1/2) DRUM ERROR INTEGRATOR
IC202 (2/2) CAPSTAN ERROR INTEGRATOR
DRUM DA
DRUM PG
DRUM FG
REF 2.5V
9V
SW 5V
IC203 (69) RF/PB
5.04Vp-p
6.68 msec
IC203 (42) REC/PB
4.56Vp-p
12MHz
(20) REC/PB
2.52Vp-p
664 μsec
IC101 (2/3) CAPSTAN FG AMP
CAP FG
CAP DA
CAP STOP
STEP PLS
CAP RVS
CAP TRQ1
CAP TRQ2
D201
CN002
CAP VS
CAP RVS
LIMITER
MTR 12V
SW 5V
IC1 (2/2)
VS
FRC
TL
VM
VCC
U(+) U(-) V(+) V(-) W(+) W(-)
HALL DRIVE
M902 CAPSTAN MOTOR
M902 CAPSTAN MOTOR (2/2)
IC203 (1) REC/PB
5.12Vp-p
40 msec
IC101 (3/3) CTL REC/PB AMP
INDEX
REC INH
CTL INDEX
CTL REC
VALUE DET
REC CTL
OPEN PB
RC
PB CTL LOGIC
CTL
PB CTL
VD CTL
RTG MMV
TIME CONST
CTL STEP
RF SWP
AF SWP
CN304 (3/4)
RF SWP To VIDEO 1 BLOCK
AF SWP To AUDIO BLOCK
IC203 (100) REC/PB
RF SW POS
AF SW POS
RV202 RF SW POS
RV201 AF SW POS
5.2Vp-p
40 msec
IC203 (77) REC/PB
5.04Vp-p
40 msec
IC203 (7) REC
4.96Vp-p
33.4 msec
D+5V
IC002 (1/2) WAVE SHAPER
Q002 SUPPLY END SENSOR
Q001 TAKE-UP END SENSOR
UNSW D+5V
IC002 (2/2) WAVE SHAPER
PH001 SUPPLY REEL FG
PH002 TAKE-UP REEL FG
CA-41 BOARD
M903 CAM MOTOR
CN006
CM-14 BOARD
M904 LOADING MOTOR
CN005
S1 CAM ENCODER
ROTARY SWITCH (CAM POSITION)
CN003
IC201 CAM/LOADING MOTOR DRIVE
CAM(+) CAM(-) LOAD(+) CAM CW/CCW LOAD
MTR 12V
IC203 (2/2) SYSTEM CONTROL
S SENSD
T SENS
S REEL
T REEL
X201 12MHz
XTAL
EXTAL
D204
UN SW 5V
VDD
AV DD
AV REF
Q201 LED DRIVE
D001 TOP/END LED
END LED
S001 CASSETE UP/DOWN
UP DOWN
C DOWN
S002 REC PROOF
CIN/REC PRE
CAM
CW/CCW
LOAD
MODE 1
MODE 2
MODE 3
MODE 4
MODE CONT
S CLK
SI BUS
SO BUS
COSMO CS
COSMO RST
CN301 (4/6)
MODE CONT To TUNER BLOCK
CN302 (3/4)
FROM/To TIMER/TUNER MODE CONTROL BLOCK
CN304 (4/4)
V PB
E TAPE
ORC ON
QVD
QHD ENABLE
JOG
CLK
DATA
CN303 (1/2)
SECAM
ME SECAM
LP HEAD
RF ENV
REC P
HEAD CONT
FE ON
SP
REC CUR
FROM/To VIDEO 1 BLOCK
B MODEL ONLY
Q301 MUTE
OSD MUTE
OSD VCOLOR CONT
C+ CONT
V SYNC
COMP SYNC
MUTE
LINE 1
LINE 2
FROM/To VIDEO 2 BLOCK
AF ENV
AF REC P
REC
A MUTE
NA PB
NA REC P
FULL ERS
AV CONT
FROM/To AUDIO BLOCK
AN 5V
IC303 SYNCHRONIZED SERIAL BUS PARALLEL
SO 1
SCK 1
TAIL MARK COUNTER
CLOCK GATE
ADDRESS SHIFT REGISTER
ADDRESS DECODER
DATA SHIFT REGISTER
OUTPUT LATCH REGISTER
DIVIDE
Q302 SW

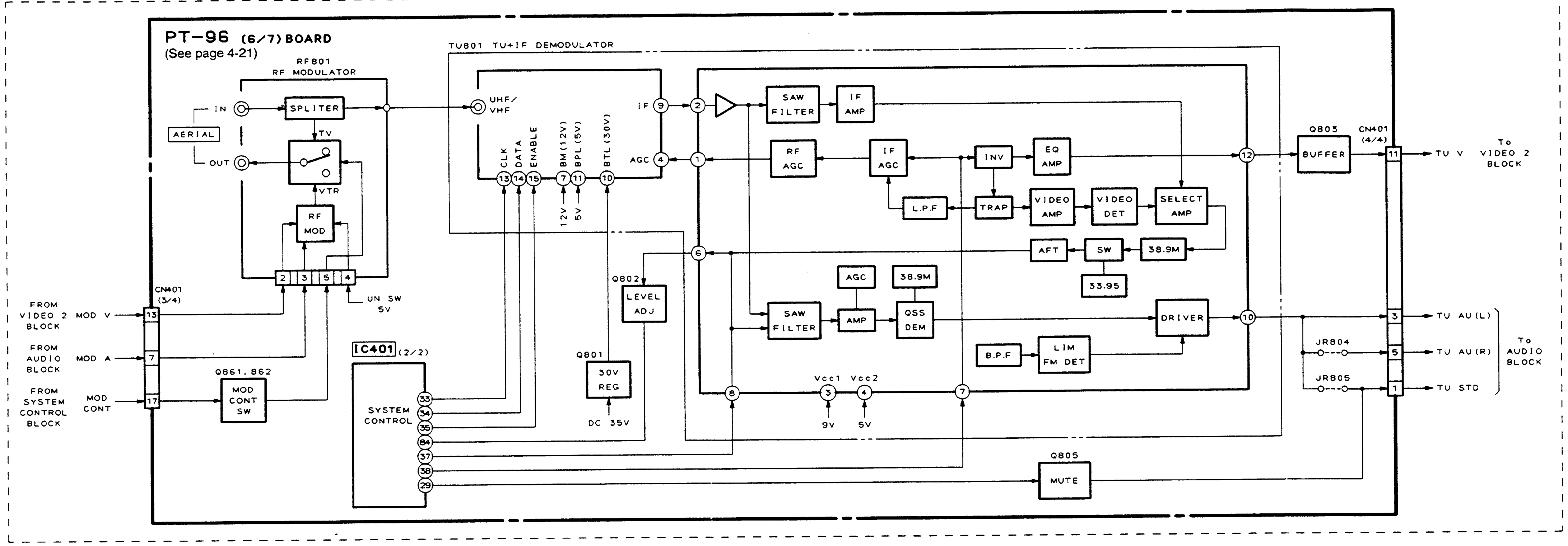
## 3-5. AUDIO BLOCK DIAGRAM


IC260
AFM REC/PB AMP
SW 5V
VCC
AUDIO HEAD
CH 1
CH 2
CN801
HEAD AMP
REC ON
VCC
BUFFER
CURRENT AMP
PB ON
AGC DET
AGC DET
AGC AMP
CONTROL LOGIC
CN803
CN001 (2/2)
To VIDEO BLOCK
REC
RV-33 BOARD (2/2) (See page 4-7)
PB RF fo & HF/N DET BPF fo
RV101
IC101
AUDIO PROCESS
HF-34 BOARD
(See page 4-33)
CN103
PB RF
REC RF
B. P. F
ENVE
MODEM LCH
MODEM RCH
EMPH DOC
SHWP GEN.
PNR LCH
PNR RCH
OUTPUT SW
FM DET
LINE AMP
MIX AMP
REG
Q102
Q101
UNREG 12V
UNREG -9V
VCC
RV102
VCO fo (R) 1.8M (PAL)
RV103
VCO fo (L) 1.4M (PAL)
Q103
Q104
SW
SERIAL CTRL
EVR ALC
AF ENV
AF SWP
CLK
DATA
A MUTE
CN101
CN102
LINE (L)
LINE (R)
RF CONV
NORMAL
HIFI (L)
HIFI (R)
CN405
CN301 (6/6)
FROM TUNER BLOCK
CN301 (5/6)
MOD AU
To TUNER BLOCK
CN801 (1/2)
LINE (L)
LINE (R)
HIFI (L)
HIFI (R)
NORM AU
CN701 (1/2)
CN802
CN702
TU STD
TU AU (L)
TU AU (R)
EXCEPT B. NP MODEL
JR713
JR763
FROM SYSTEM CONTROL BLOCK
L1 CONT
L2 CONT
C+ CONT
CN803 (4/4)
CN703 (4/4)
AUDIO (L)
AUDIO (R)
CJ701 (3/4)
EURO AV
CN406
DATA
CLK
AF ENV
AF REC P
REC
FROM/To SYSTEM CONTROL BLOCK
AF SWP
FROM SERVO BLOCK
CN303 (2/2)
CN857
BIAS (-)
BIAS (+)
CHECK PIN
CN854
A HEAD (X)
A HEAD (Y)
AUDIO REC/PB HEAD
IC401
PB/REC AMP. SWITCH
NORMAL
NORM AU
RV851
BIAS ADJ
D402
A MUTE
NA PB
SP
NA REC P
FULL ERS
FROM SYSTEM CONTROL BLOCK
Q851 T851
A ERASE HEAD
BIAS/ ERASE OSC
Q853, 854
Q852 T852
BIAS/ FE OSC
Q855
VCC
AUDIO ERASE HEAD
FULL ERASE HEAD
CN855
FE HEAD
MA-181 BOARD (5/6)
(See page 4-16)
05
PJ601 (2/2)
LINE 2 IN
AUDIO (L)
AUDIO (R)
CN601 (2/3)
MF-243 BOARD (2/3)
(See page 4-16)
CN402 (2/3)
CN801 (2/2)
L2 AU (L)
L2 AU (R)
CN701 (2/2)
CN902 (2/3)
C+A (L)
C+A (R)
CN706 (2/3)
CJ901 (3/4)
PAY TV CANAL PLUS
CN904
CN704
L3 AU (L)
L3 AU (R)
UX, UY ONLY
CP-65 BOARD (3/4)
(See page 4-45)
IC7
CANA

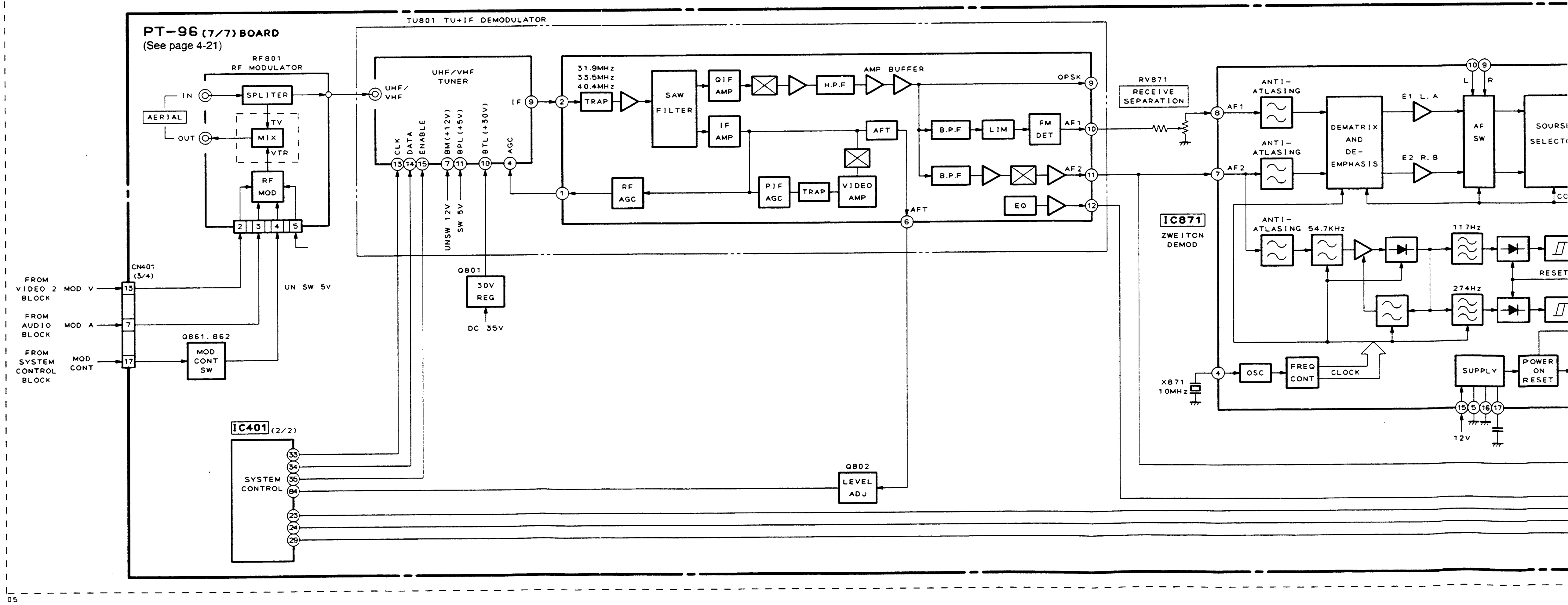

HF-34 BOARD
(See page 4-33)
IC101
AUDIO PROCESS
ENVE
SHWP GEN.
FM DET
EMPH DOC
PNR LCH
PNR RCH
OUTPUT SW
LINE AMP
MIX AMP
REG
SERIAL CTRL
EVR ALC
Q102
Q101
UNREG 12V
UNREG -9V
VCC
CN102
LINE (L)
LINE (R)
RF CONV
NORMAL
HIFI (L)
HIFI (R)
CN101
AF ENV
AF SWP
CLK
DATA
A MUTE
CN406
CN405
CN301 (6/6)
FROM TUNER BLOCK
CN301 (5/6)
MOD AU
To TUNER BLOCK
CN801 (1/2)
CN701 (1/2)
LINE (L)
LINE (R)
HIFI (L)
HIFI (R)
NORM AU
CN802
CN702
TU STD
TU AU (L)
TU AU (R)
L1 CONT
L2 CONT
C+ CONT
CN803 (4/4)
CN703 (4/4)
FROM SYSTEM CONTROL BLOCK
CJ702
LINE 1 OUT
AUDIO (L)
AUDIO (R)
EXCEPT B. NP MODEL
JR706
JR756
JR713
JR763
IC701
AUDIO MODE SELECT
IC702
BUFFER
IC703
NORMAL AU INPUT SELECT
DATA
CLK
AF ENV
AF REC P
REC
FROM/To SYSTEM CONTROL BLOCK
AF SWP
FROM SERVO BLOCK
IC401
B/REC . SWITCH
NORMAL
NORM AU
D402
A MUTE
NA PB
SP
NA REC P
FULL ERS
FROM SYSTEM CONTROL BLOCK
Q855
VCC
MA-181 BOARD (5/6)
(See page 4-16)
AUDIO (L)
AUDIO (R)
CJ701 (3/4)
EURO AV
B. NP. UX. UY MODEL ONLY
IC706 (2/2)
CANAL PLUS SW (AUDIO)
PJ601 (2/2)
LINE 2 IN
AUDIO (L)
AUDIO (R)
CN601 (2/3)
MF-243 BOARD (2/3)
(See page 4-16)
CN402 (2/3)
CN801 (2/2)
CN701 (2/2)
L2 AU (L)
L2 AU (R)
CN902 (2/3)
CN706 (2/3)
C+A (L)
C+A (R)
CN904
CN704
L3 AU (L)
L3 AU (R)
UX. UY ONLY
CJ901 (3/4)
PAY TV CANAL PLUS
C+A (L)
C+A (R)
CP-65 BOARD (3/4)
(See page 4-45)
AUDIO (L)
AUDIO (R)
CJ701 (4/4)
EURO AV
CN706 (3/3)
CN902 (3/3)
C+A (L)
C+A (R)
CJ901 (4/4)
PAL TV CANAL PLUS
(See page 4-35)
IO-50 BOARD (2/2)
CP-65 BOARD (4/4)
(See page 4-45)

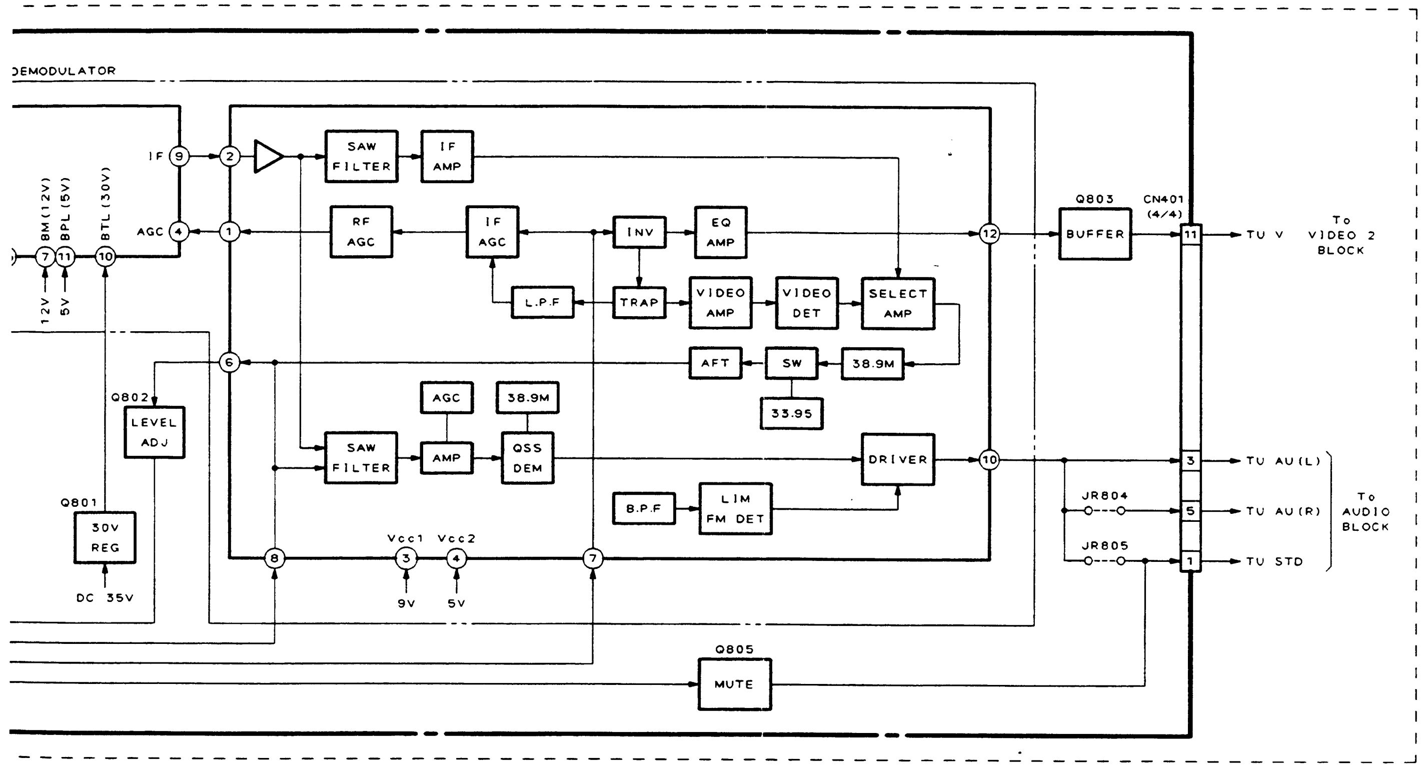
## 3-6. TUNER BLOCK DIAGRAM-1

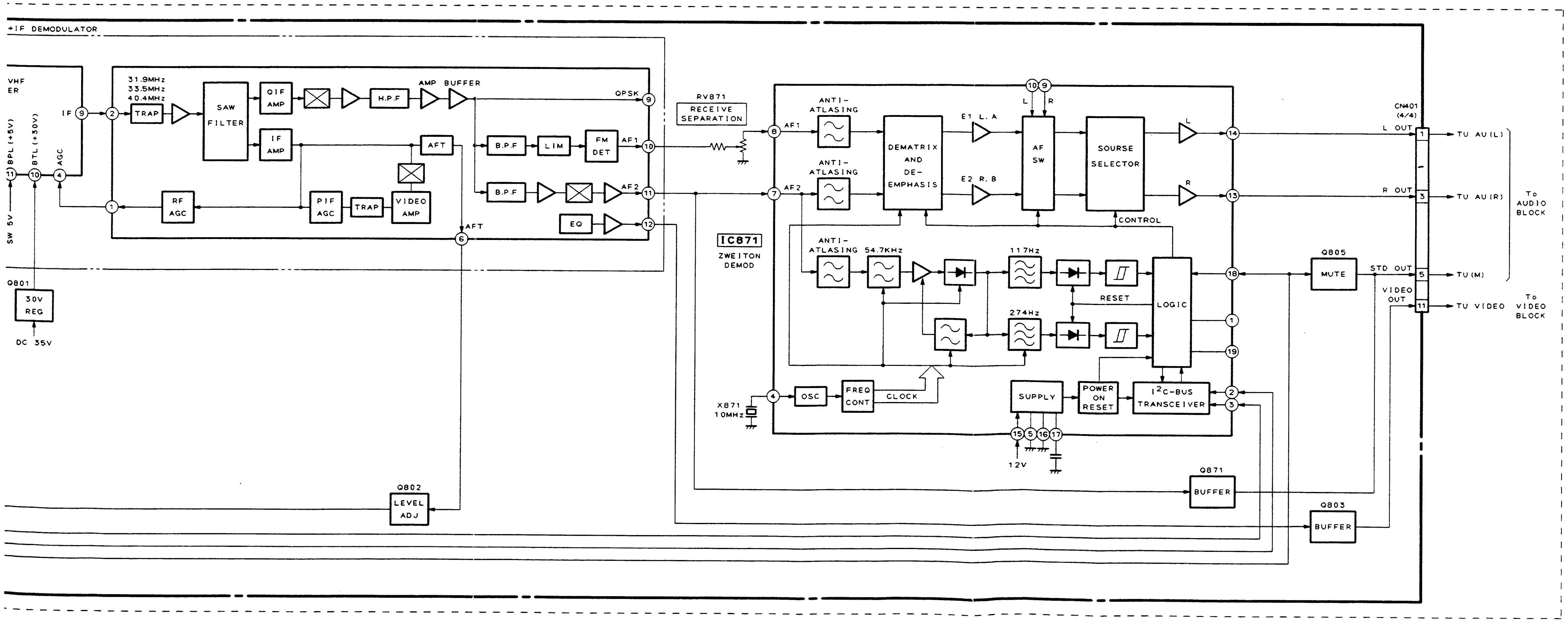
B MODEL ONLY


PT-96 (6/7) BOARD
(See page 4-21)
RF801
RF MODULATOR
IN
AERIAL
OUT
SPLITER
TV
VTR
RF MOD
2 3 5 4
UN SW 5V
CN401 (3/4)
FROM VIDEO 2 BLOCK
MOD V
FROM AUDIO BLOCK
MOD A
FROM SYSTEM CONTROL BLOCK
MOD CONT
Q861, 862
MOD CONT SW
IC401 (2/2)
SYSTEM CONTROL
TU801 TU+IF DEMODULATOR
UHF/VHF
CLK
DATA
ENABLE
BM(12V)
BPL(5V)
BTL(30V)
12V
5V
IF
AGC
Q802
LEVEL ADJ
Q801
30V REG
DC 35V
SAW FILTER
IF AMP
RF AGC
IF AGC
INV
EQ AMP
L.P.F
TRAP
VIDEO AMP
VIDEO DET
SELECT AMP
AFT
SW
38.9M
33.95
AGC
38.9M
SAW FILTER
AMP
QSS DEM
DRIVER
B.P.F
LIM FM DET
Vcc1
Vcc2
9V
5V
Q803
BUFFER
CN401 (4/4)
TU V
To VIDEO 2 BLOCK
JR804
JR805
TU AU(L)
TU AU(R)
TU STD
To AUDIO BLOCK
Q805
MUTE

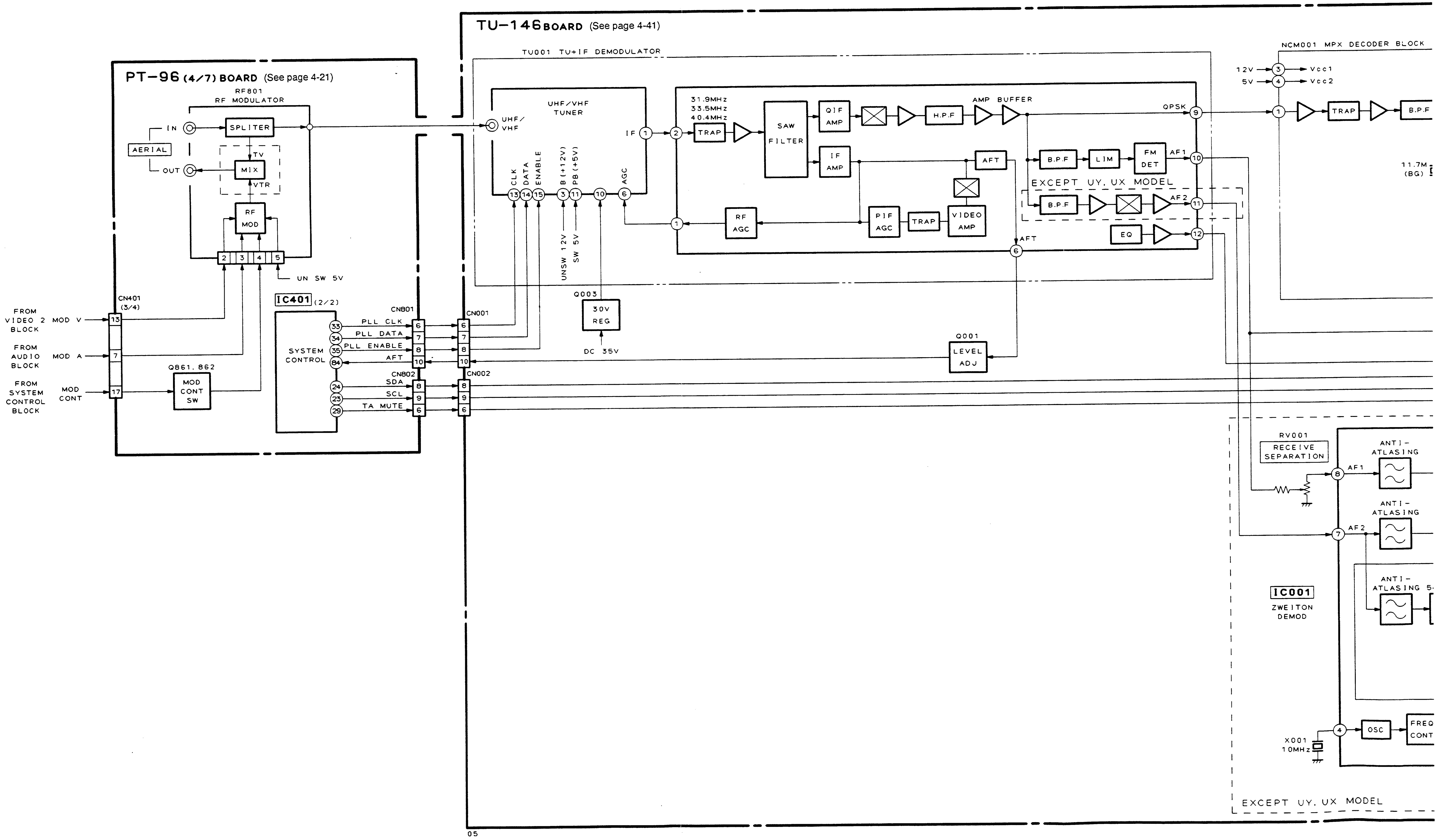
VP, AP, IT MODEL ONLY

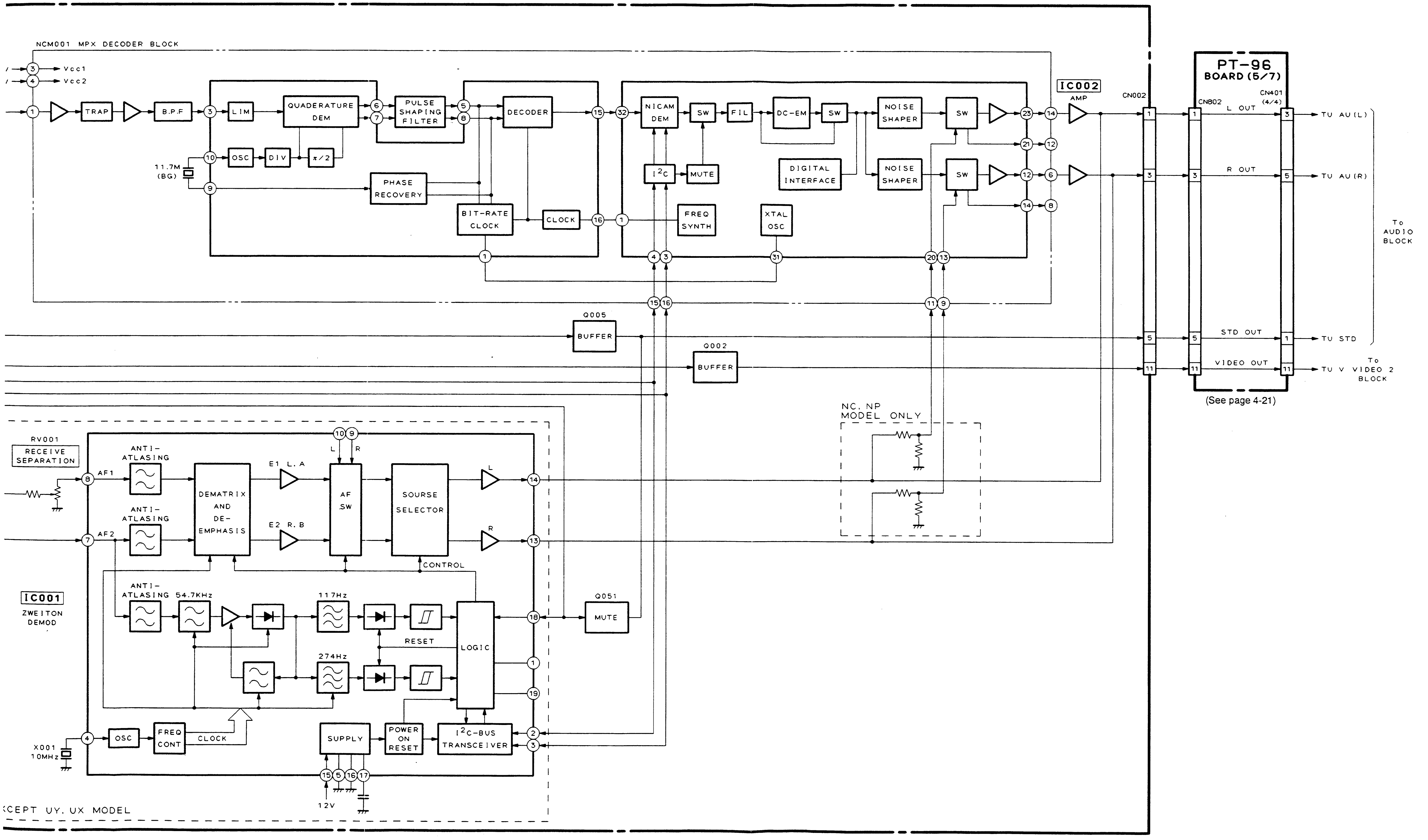

PT-96 (7/7) BOARD
(See page 4-21)
RF801
RF MODULATOR
IN
AERIAL
OUT
SPLITER
TV
MIX
VTR
RF MOD
2 3 4 5
UN SW 5V
CN401 (3/4)
FROM VIDEO 2 BLOCK
MOD V
FROM AUDIO BLOCK
MOD A
FROM SYSTEM CONTROL BLOCK
MOD CONT
Q861, 862
MOD CONT SW
IC401 (2/2)
SYSTEM CONTROL
TU801 TU+IF DEMODULATOR
UHF/VHF TUNER
UHF/VHF
CLK
DATA
ENABLE
BM(+12V)
BPL(+5V)
BTL(+30V)
AGC
UNSW 12V
SW 5V
IF
Q801
30V REG
DC 35V
31.9MHz
33.5MHz
40.4MHz
TRAP
SAW FILTER
QIF AMP
IF AMP
H.P.F
AMP BUFFER
QPSK
AFT
RF AGC
PIF AGC
TRAP
VIDEO AMP
B.P.F
LIM
FM DET
AF1
AF2
EQ
Q802
LEVEL ADJ
RV871
RECEIVE SEPARATION
IC871
ZWEITON DEMOD
ANTI-ATLASING
DEMATRIX AND DE-EMPHASIS
E1 L, A
E2 R, B
AF SW
L
R
SOURSE SELECTO
ANTI-ATLASING 54.7KHz
117Hz
274Hz
RESET
X871 10MHz
OSC
FREQ CONT
CLOCK
SUPPLY
POWER ON RESET
12V


DEMODULATOR
IF
AGC
8M (12V)
BPL (5V)
BTL (30V)
12V
5V
SAW FILTER
IF AMP
RF AGC
IF AGC
INV
EQ AMP
L.P.F
TRAP
VIDEO AMP
VIDEO DET
SELECT AMP
AFT
SW
38.9M
33.95
AGC
38.9M
SAW FILTER
AMP
QSS DEM
DRIVER
B.P.F
LIM FM DET
Q802
LEVEL ADJ
Q801
30V REG
DC 35V
Vcc1
Vcc2
9V
5V
Q805
MUTE
Q803
BUFFER
CN401 (4/4)
TU V
To VIDEO 2 BLOCK
TU AU (L)
JR804
TU AU (R)
JR805
TU STD
To AUDIO BLOCK


+IF DEMODULATOR
VHF
ER
IF
BPL (+5V)
BTL (+30V)
AGC
SW 5V
31.9MHz
33.5MHz
40.4MHz
TRAP
SAW FILTER
QIF AMP
IF AMP
H.P.F
AMP
BUFFER
QPSK
AFT
B.P.F
LIM
FM DET
AF1
B.P.F
AF2
EQ
RF AGC
PIF AGC
TRAP
VIDEO AMP
AFT
Q801
30V REG
DC 35V
Q802
LEVEL ADJ
RV871
RECEIVE SEPARATION
IC871
ZWEITON DEMOD
X871
10MHz
AF1
AF2
ANTI-ATLASING
ANTI-ATLASING
DEMATRIX AND DE-EMPHASIS
E1 L.A
E2 R.B
L
R
AF SW
SOURSE SELECTOR
CONTROL
L
R
ANTI-ATLASING
54.7KHz
117Hz
274Hz
RESET
LOGIC
OSC
FREQ CONT
CLOCK
SUPPLY
POWER ON RESET
I²C-BUS TRANSCEIVER
12V
Q805
MUTE
Q871
BUFFER
Q803
BUFFER
CN401 (4/4)
L OUT
R OUT
STD OUT
VIDEO OUT
TU AU (L)
TU AU (R)
TU (M)
TU VIDEO
To AUDIO BLOCK
To VIDEO BLOCK

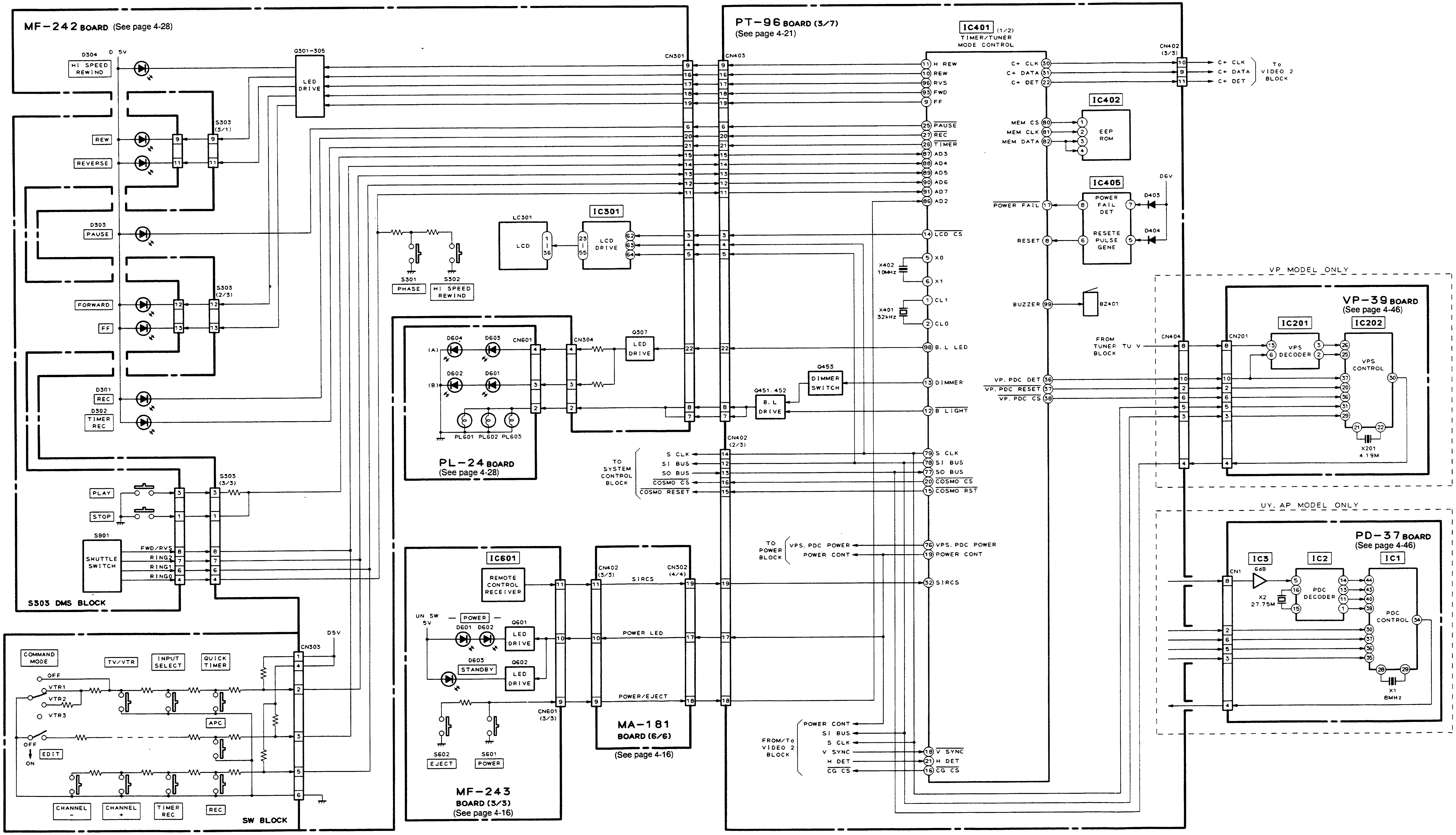
## 3-7. TUNER BLOCK DIAGRAM-2


PT-96 (4/7) BOARD (See page 4-21)
RF801
RF MODULATOR
AERIAL
IN
OUT
SPLITER
MIX
TV
VTR
RF MOD
UN SW 5V
CN401 (3/4)
FROM VIDEO 2 BLOCK
MOD V
FROM AUDIO BLOCK
MOD A
FROM SYSTEM CONTROL BLOCK
MOD CONT
Q861, 862
MOD CONT SW
IC401 (2/2)
SYSTEM CONTROL
CN801
PLL CLK
PLL DATA
PLL ENABLE
AFT
CN802
SDA
SCL
TA MUTE
TU-146 BOARD (See page 4-41)
TU001 TU+IF DEMODULATOR
UHF/VHF TUNER
UHF/VHF
IF
CLK
DATA
ENABLE
B (+12V)
PB (+5V)
AGC
UNSW 12V
SW 5V
CN001
CN002
Q003
30V REG
DC 35V
31.9MHz
33.5MHz
40.4MHz
TRAP
SAW FILTER
QIF AMP
IF AMP
H.P.F
AMP BUFFER
QPSK
AFT
B.P.F
LIM
FM DET
AF1
EXCEPT UY, UX MODEL
AF2
RF AGC
PIF AGC
VIDEO AMP
EQ
Q001
LEVEL ADJ
NCM001 MPX DECODER BLOCK
12V
5V
Vcc1
Vcc2
11.7M
(BG)
RV001
RECEIVE SEPARATION
ANTI-ATLASING
IC001
ZWEITON DEMOD
X001
10MHz
OSC
FREQ CONT
EXCEPT UY, UX MODEL
05

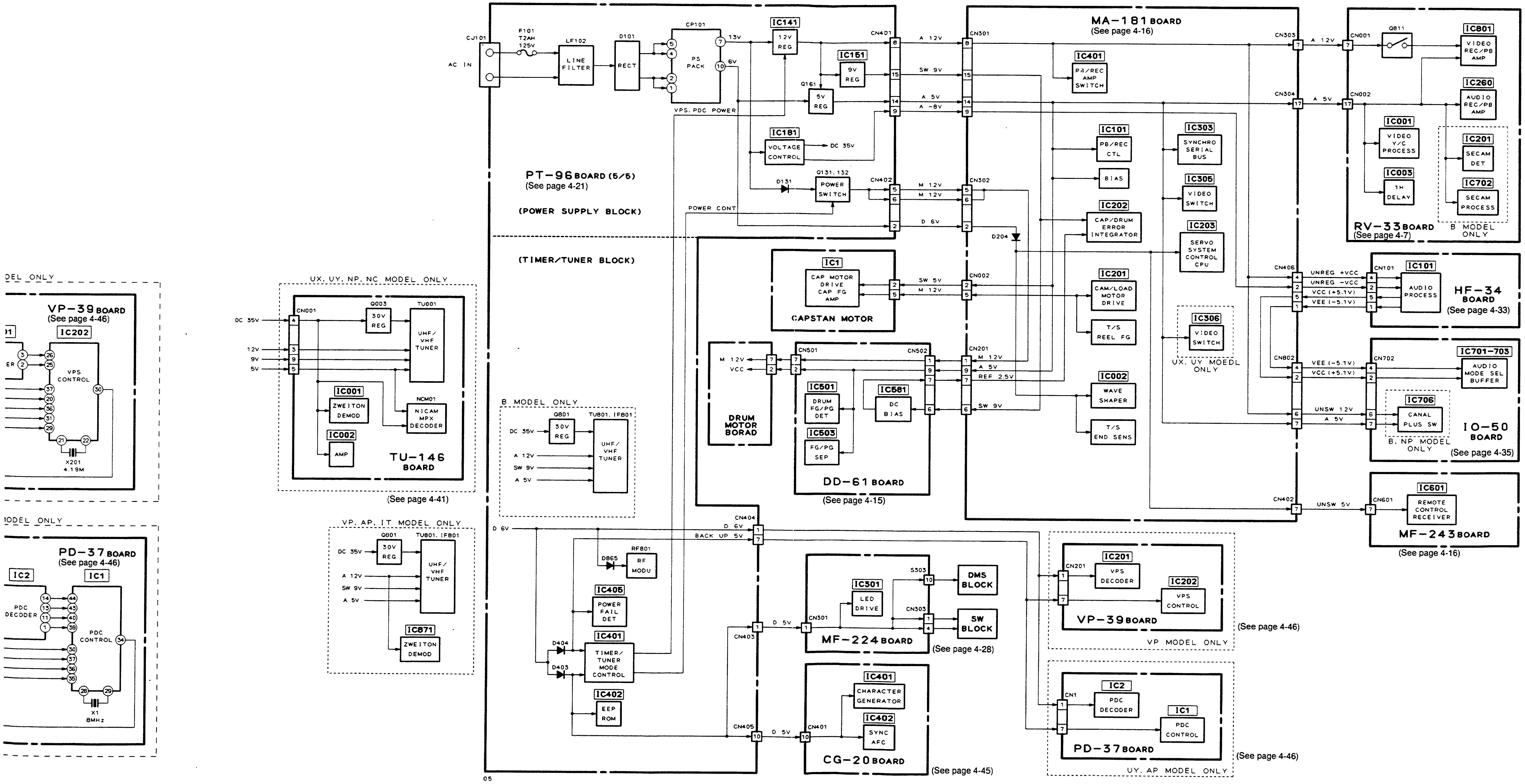

NCM001 MPX DECODER BLOCK
Vcc1
Vcc2
TRAP
B.P.F
LIM
QUADERATURE DEM
PULSE SHAPING FILTER
DECODER
OSC
DIV
π/2
11.7M (BG)
PHASE RECOVERY
BIT-RATE CLOCK
CLOCK
NICAM DEM
SW
FIL
DC-EM
SW
NOISE SHAPER
SW
I²C
MUTE
DIGITAL INTERFACE
NOISE SHAPER
SW
FREQ SYNTH
XTAL OSC
IC002
AMP
CN002
PT-96
BOARD (5/7)
CN802
CN401 (4/4)
L OUT
R OUT
STD OUT
VIDEO OUT
TU AU(L)
TU AU(R)
To AUDIO BLOCK
TU STD
TU V
To VIDEO 2 BLOCK
Q005
BUFFER
Q002
BUFFER
NC, NP MODEL ONLY
RV001
RECEIVE SEPARATION
AF1
AF2
ANTI-ATLASING
ANTI-ATLASING
DEMATRIX AND DE-EMPHASIS
E1 L.A
E2 R.B
L
R
AF SW
SOURSE SELECTOR
CONTROL
ANTI-ATLASING 54.7KHz
117Hz
274Hz
RESET
LOGIC
Q051
MUTE
IC001
ZWEITON DEMOD
X001 10MHz
OSC
FREQ CONT
CLOCK
SUPPLY
POWER ON RESET
I²C-BUS TRANSCEIVER
12V
EXCEPT UY, UX MODEL

(See page 4-21)

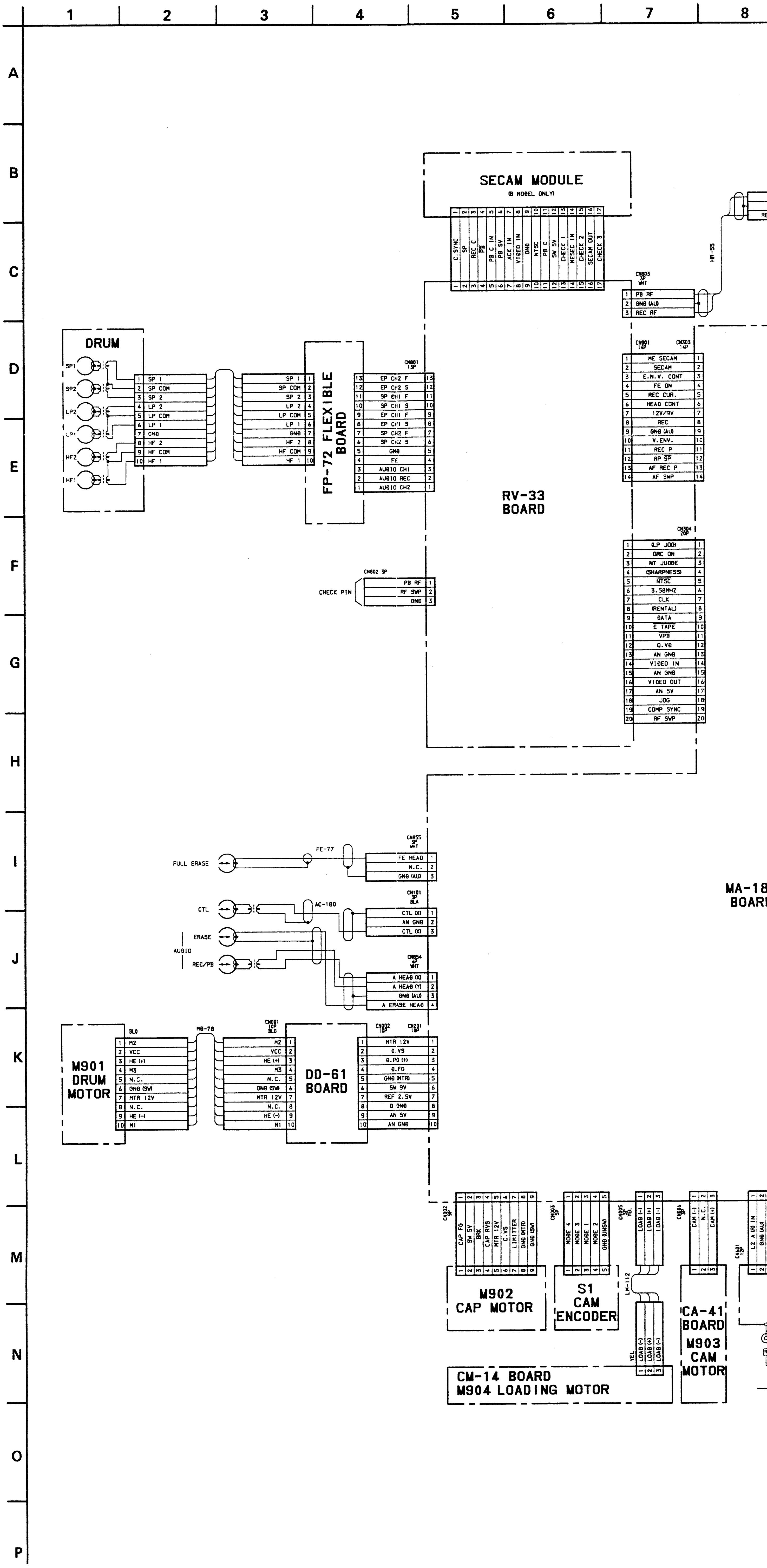
## 3-8. TIMER, MODE CONTROL BLOCK DIADRAM


MF-242 BOARD (See page 4-28)
S303 DMS BLOCK
SW BLOCK
PL-24 BOARD (See page 4-28)
MF-243 BOARD (3/3) (See page 4-16)
MA-181 BOARD (6/6) (See page 4-16)
PT-96 BOARD (3/7) (See page 4-21)
IC401 (1/2) TIMER/TUNER MODE CONTROL
IC402 EEP ROM
IC405 POWER FAIL DET / RESETE PULSE GENE
IC301 LCD DRIVE
LC301 LCD
IC601 REMOTE CONTROL RECEIVER
LED DRIVE
B.L DRIVE
DIMMER SWITCH
VP MODEL ONLY
VP-39 BOARD (See page 4-46)
IC201 VPS DECODER
IC202 VPS CONTROL
UY, AP MODEL ONLY
PD-37 BOARD (See page 4-46)
IC3
IC2 PDC DECODER
IC1 PDC CONTROL
TO SYSTEM CONTROL BLOCK
TO POWER BLOCK
FROM/TO VIDEO 2 BLOCK
To VIDEO 2 BLOCK
FROM TUNER TU V BLOCK
HI SPEED REWIND
REW
REVERSE
PAUSE
FORWARD
FF
REC
TIMER REC
PLAY
STOP
SHUTTLE SWITCH
COMMAND MODE
TV/VTR
INPUT SELECT
QUICK TIMER
EDIT
CHANNEL -
CHANNEL +
TIMER REC
PHASE
EJECT
POWER
STANDBY

## 3-9. POWER SUPPLY BLOCK DIAGRAM


PT-96 BOARD (5/5)
(See page 4-21)
(POWER SUPPLY BLOCK)
(TIMER/TUNER BLOCK)
CJ101
AC IN
F101 T2AH 125V
LF102 LINE FILTER
D101 RECT
CP101 PS PACK
VPS. PDC POWER
13V
6V
IC141 12V REG
IC151 9V REG
Q161 5V REG
IC181 VOLTAGE CONTROL
DC 35V
D131
Q131, 132 POWER SWITCH
POWER CONT
CN401
CN402
A 12V
SW 9V
A 5V
A -8V
M 12V
D 6V
D204
MA-181 BOARD
(See page 4-16)
CN301
CN302
CN303
CN304
CN406
CN802
CN402
IC401 PB/REC AMP SWITCH
IC101 PB/REC CTL
BIAS
IC202 CAP/DRUM ERROR INTEGRATOR
IC201 CAM/LOAD MOTOR DRIVE
T/S REEL FG
IC002 WAVE SHAPER
T/S END SENS
IC303 SYNCHRO SERIAL BUS
IC305 VIDEO SWITCH
IC203 SERVO SYSTEM CONTROL CPU
IC306 VIDEO SWITCH
UX, UY MOEDL ONLY
CN002
CN201
REF 2.5V
CAPSTAN MOTOR
IC1 CAP MOTOR DRIVE CAP FG AMP
SW 5V
DRUM MOTOR BORAD
M 12V
VCC
DD-61 BOARD
(See page 4-15)
CN501
CN502
IC501 DRUM FG/PG DET
IC581 DC BIAS
IC503 FG/PG SEP
RV-33 BOARD
(See page 4-7)
CN001
CN002
Q811
IC801 VIDEO REC/PB AMP
IC260 AUDIO REC/PB AMP
IC001 VIDEO Y/C PROCESS
IC003 1H DELAY
IC201 SECAM DET
IC702 SECAM PROCESS
B MODEL ONLY
HF-34 BOARD
(See page 4-33)
CN101
IC101 AUDIO PROCESS
UNREG +VCC
UNREG -VCC
VCC (+5.1V)
VEE (-5.1V)
IO-50 BOARD
(See page 4-35)
CN702
IC701-703 AUDIO MODE SEL BUFFER
IC706 CANAL PLUS SW
B, NP MODEL ONLY
UNSW 12V
MF-243 BOARD
(See page 4-16)
CN601
IC601 REMOTE CONTROL RECEIVER
UNSW 5V
UX, UY, NP, NC MODEL ONLY
TU-146 BOARD
(See page 4-41)
CN001
Q003 30V REG
TU001 UHF/VHF TUNER
IC001 ZWEITON DEMOD
NCM01 NICAM MPX DECODER
IC002 AMP
DC 35V
12V
9V
5V
B MODEL ONLY
Q801 30V REG
TU801, IF801 UHF/VHF TUNER
A 12V
SW 9V
A 5V
VP, AP, IT MODEL ONLY
Q801 30V REG
TU801, IF801 UHF/VHF TUNER
IC871 ZWEITON DEMOD
D 6V
CN404
BACK UP 5V
RF801 RF MODU
D865
IC405 POWER FAIL DET
IC401 TIMER/TUNER MODE CONTROL
D404
D403
IC402 EEP ROM
CN403
CN405
D 5V
MF-224 BOARD
(See page 4-28)
CN301
IC501 LED DRIVE
S303
CN303
DMS BLOCK
SW BLOCK
CG-20 BOARD
(See page 4-45)
CN401
IC401 CHARACTER GENERATOR
IC402 SYNC AFC
VP-39 BOARD
(See page 4-46)
CN201
IC201 VPS DECODER
IC202 VPS CONTROL
VP MODEL ONLY
PD-37 BOARD
(See page 4-46)
CN1
IC2 PDC DECODER
IC1 PDC CONTROL
UY, AP MODEL ONLY
DEL ONLY
VP-39 BOARD
(See page 4-46)
IC202
VPS CONTROL
X201 4.19M
ODEL ONLY
PD-37 BOARD
(See page 4-46)
IC2
IC1
PDC DECODER
PDC CONTROL
X1 8MHz
05

## 4-1. FRAME SCHEMATIC DIAGRAM



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A
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K
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M
N
O
P
SECAM MODULE
(B MODEL ONLY)
C.SYNC
SP
REC C
PB
PB C IN
PB 5V
ACK IN
VIDEO IN
GND
NTSC
PB C
SW 5V
CHECK 1
MESEC IN
CHECK 2
SECAM OUT
CHECK 3
HR-55
CN803 3P WHT
PB RF
GND (AU)
REC RF
DRUM
SP1
SP2
LP2
LP1
HF2
HF1
SP 1
SP COM
SP 2
LP 2
LP COM
LP 1
GND
HF 2
HF COM
HF 1
FP-72 FLEXIBLE BOARD
CN801 13P
EP CH2 F
EP CH2 S
SP CH1 F
SP CH1 S
EP CH1 F
EP CH1 S
SP CH2 F
SP CH2 S
GND
FE
AUDIO CH1
AUDIO REC
AUDIO CH2
RV-33 BOARD
CN001 14P
CN303 14P
ME SECAM
SECAM
E.N.V. CONT
FE ON
REC CUR.
HEAD CONT
12V/9V
REC
GND (AU)
V.ENV.
REC P
RP SP
AF REC P
AF SWP
CN304 20P
(LP JOG)
ORC ON
NT JUDGE
(SHARPNESS)
NTSC
3.58MHZ
CLK
(RENTAL)
DATA
E TAPE
VPB
Q.VD
AN GND
VIDEO IN
AN GND
VIDEO OUT
AN 5V
JOG
COMP SYNC
RF SWP
CN802 3P
CHECK PIN
PB RF
RF SWP
GND
FULL ERASE
FE-77
CN855 3P WHT
FE HEAD
N.C.
GND (AU)
CTL
AC-180
CN101 3P BLA
CTL (X)
AN GND
CTL (X)
AUDIO
ERASE
REC/PB
CN854 4P WHT
A HEAD (X)
A HEAD (Y)
GND (AU)
A ERASE HEAD
MA-18 BOARD
M901 DRUM MOTOR
BLO
M8-78
CN001 10P BLO
M2
VCC
HE (+)
M3
N.C.
GND (SW)
MTR 12V
N.C.
HE (-)
M1
DD-61 BOARD
CN002 10P
CN201 10P
MTR 12V
D.VS
D.PG (+)
D.FG
GND (MTR)
SW 9V
REF 2.5V
D GND
AN 5V
AN GND
CN002 9P
CAP FG
SW 5V
BRK
CAP RVS
MTR 12V
C.VS
LIMITTER
GND (MTR)
GND (SW)
CN003 5P
MODE 4
MODE 3
MODE 1
MODE 2
GND (UNSW)
CN005 3P YEL
LOAD (+)
LOAD (-)
LOAD (-)
CN004 3P
CAM (-)
N.C.
CAM (+)
CN401 12P
L2 A (X) IN
GND (AU)
M902 CAP MOTOR
S1 CAM ENCODER
LM-112
YEL
CA-41 BOARD
M903 CAM MOTOR
CM-14 BOARD
M904 LOADING MOTOR

### THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.

### (In addition to this, the necessary note is printed in each block.)

**For printed wiring boards:**

- ○——— : indicates a lead wire mounted on the component side.
- •——— : indicates a lead wire mounted on the printed side.
- ○ : Through hole.
- ■ : Parts mounted on the conductor side.
- ▨ : Pattern from the side which enables seeing.
- ▨ : Pattern of the rear side.*
- Circled numbers refer to waveforms.

**Caution:**

| | |
|---|---|
| Pattern face side: (Conductor Side) | Parts on the pattern face side seen from the pattern face are indicated. |
| Parts face side: (Component Side) | Parts on the parts face side seen from the parts face are indicated. |

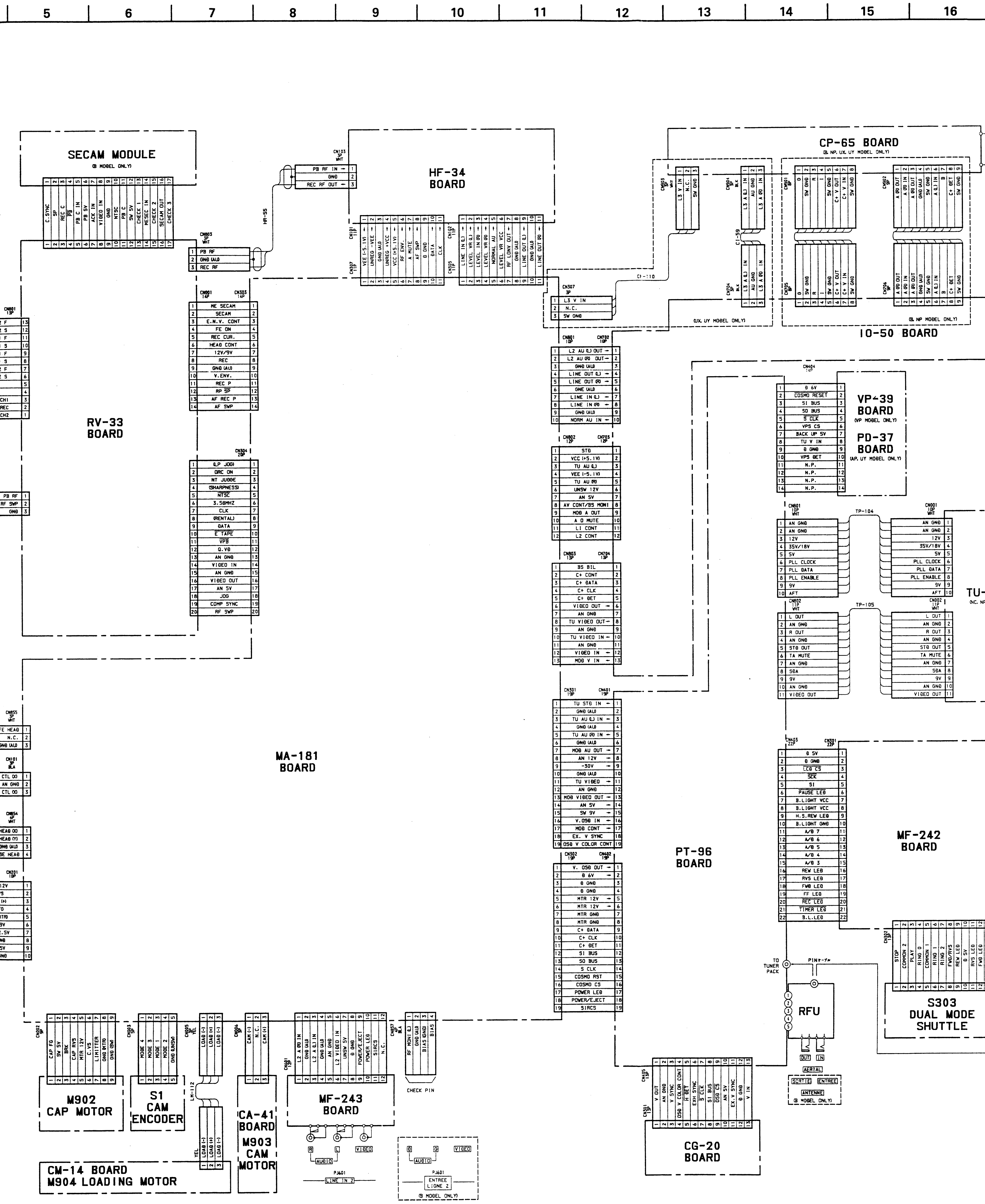
**For schematic diagram:**

- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minus side of tantalum capacitor, because it is damaged by the heat.
- All resistors are in ohms, 1/4W (Chip resistors: 1/10W) unless otherwise noted.
  kΩ: 1000Ω, MΩ: 1000kΩ.
- All capacitors are in μF unless otherwise noted. pF: μμF 50V or less are not indicated except for electrolytics and tantalums.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- ▭ : nonflammable resistor.
- ▭ : fusible resistor.
- ▭ : panel designation.
- △ : internal component.
- ▭ : adjustment for repair.*
- ━━━ : B + Line.*
- ━ ━ ━ : B − Line.*
- ⇨ : IN/OUT direction of B line ( + , − ).*
- Circled numbers refer to waveforms.*
- Voltages are dc between measurement point.*
- Readings are taken with a color-bar signal input.*
- Readings are taken with a digital multimeter (DC10MΩ).*
- Voltage are taken with a VOM (Input impedance 10MΩ).*
- Voltage variations may be noted due to normal production tolerances.*

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

- * : indicated by the color red.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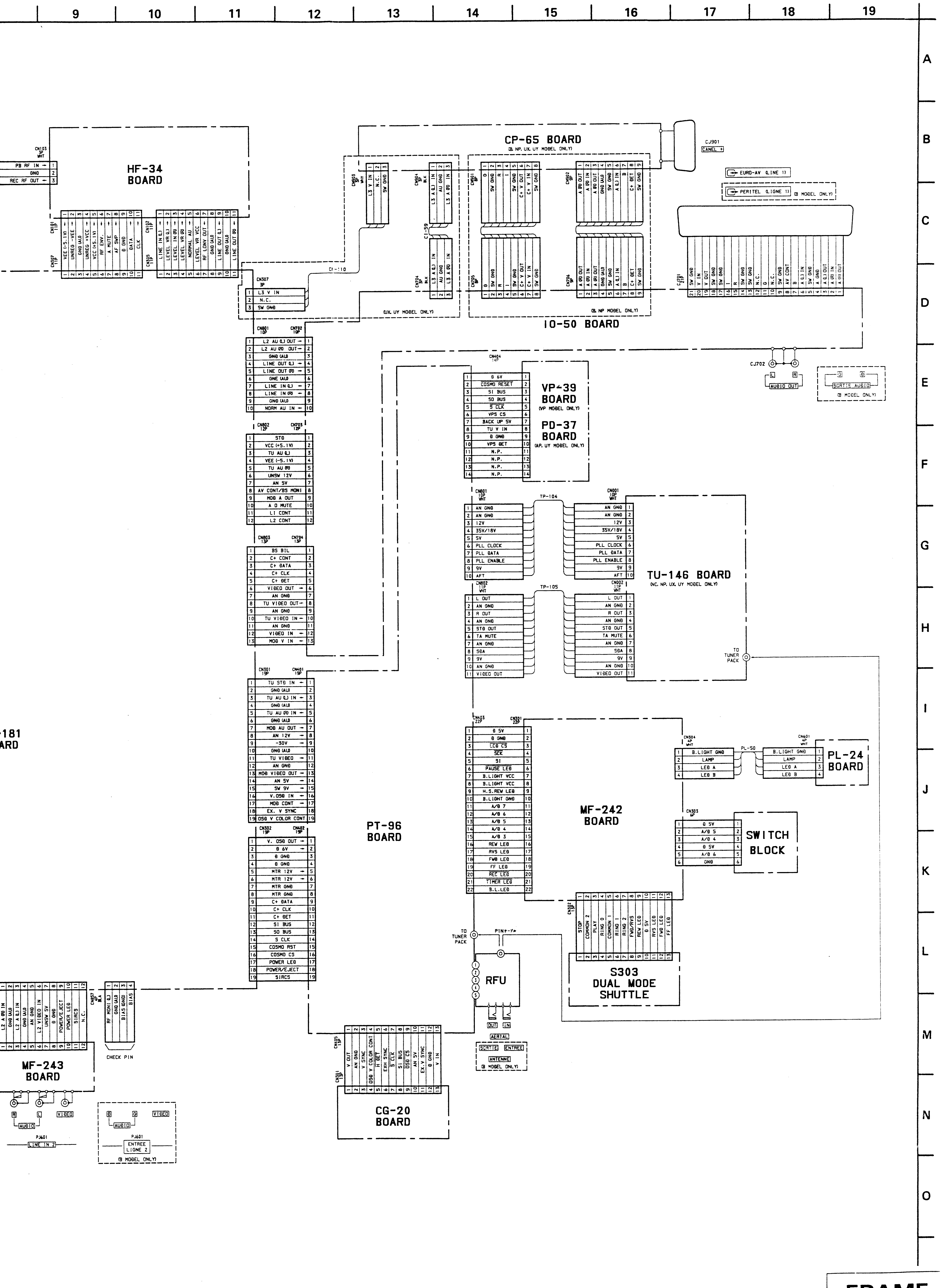
15
16
SECAM MODULE
(B MODEL ONLY)
HF-34 BOARD
CP-65 BOARD
(B, NP, UX, UY MODEL ONLY)
HR-55
CI-59
CI-110
(UX, UY MODEL ONLY)
(B, NP MODEL ONLY)
IO-50 BOARD
RV-33 BOARD
VP-39 BOARD
(VP MODEL ONLY)
PD-37 BOARD
(AP, UY MODEL ONLY)
TP-104
TP-105
MA-181 BOARD
PT-96 BOARD
MF-242 BOARD
TO TUNER PACK
RFU
OUT
IN
AERIAL
SORTIE
ENTREE
ANTENNE
(B MODEL ONLY)
S303 DUAL MODE SHUTTLE
M902 CAP MOTOR
S1 CAM ENCODER
LM-112
CA-41 BOARD
M903 CAM MOTOR
MF-243 BOARD
CHECK PIN
CM-14 BOARD
M904 LOADING MOTOR
AUDIO
VIDEO
LINE IN 2
PJ401
PJ601
ENTREE LIGNE 2
(B MODEL ONLY)
CG-20 BOARD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A
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J
K
L
M
N
O
HF-34 BOARD
CN103 3P WHT
PB RF IN
GND
REC RF OUT
CN101 11P
CN102 11P
CN507 11P
CN505 11P
VEE (-5.1V)
UNREG -VEE
GND (AU)
UNREG +VCC
VCC (+5.1V)
RF ENV.
A MUTE
AF SWP
D GND
DATA
CLK
LINE IN (L)
LEVEL VR (L)
LEVEL IN (R)
LEVEL VR (R)
NORMAL AU
LEVEL VR VCC
RF LONV OUT
GND (AU)
LINE OUT (L)
GND (AU)
LINE OUT (R)
CI-110
CN307 3P
L3 V IN
N.C.
SW GND
CP-65 BOARD
(B, NP, UX, UY MODEL ONLY)
CN903 3P WHT
CN904 3P BLK
CN901 8P
CN902 9P
L3 V IN
N.C.
SW GND
L3 A (L) IN
AU GND
L3 A (R) IN
CI-59
CN704
CN705 8P
CN706 9P
(UX, UY MODEL ONLY)
(B, NP MODEL ONLY)
10-50 BOARD
CJ901
CANEL +
EURO-AV (LINE 1)
PERITEL (LIGNE 1)
(B MODEL ONLY)
CJ701 21P
CJ702
L
R
AUDIO OUT
G
D
SORTIE AUDIO
(B MODEL ONLY)
CN801 10P
CN702 10P
L2 AU (L) OUT
L2 AU (R) OUT
GND (AU)
LINE OUT (L)
LINE OUT (R)
GNE (AU)
LINE IN (L)
LINE IN (R)
GND (AU)
NORM AU IN
CN802 12P
CN703 12P
STD
VCC (+5.1V)
TU AU (L)
VEE (-5.1V)
TU AU (R)
UNSW 12V
AN 5V
AV CONT/BS MONI
MOD A OUT
A D MUTE
L1 CONT
L2 CONT
CN803 13P
CN704 13P
BS BIL
C+ CONT
C+ DATA
C+ CLK
C+ DET
VIDEO OUT
AN GND
TU VIDEO OUT
AN GND
TU VIDEO IN
AN GND
VIDEO IN
MOD V IN
CN404 14P
D 6V
COSMO RESET
SI BUS
SO BUS
S CLK
VPS CS
BACK UP 5V
TU V IN
D GND
VPS DET
N.P.
VP-39 BOARD
(VP MODEL ONLY)
PD-37 BOARD
(AP, UY MODEL ONLY)
CN801 10P WHT
CN001 10P WHT
TP-104
AN GND
12V
35V/18V
5V
PLL CLOCK
PLL DATA
PLL ENABLE
9V
AFT
CN802 11P WHT
CN002 11P WHT
TP-105
L OUT
R OUT
STD OUT
TA MUTE
SDA
9V
VIDEO OUT
TU-146 BOARD
(NC, NP, UX, UY MODEL ONLY)
TO TUNER PACK
CN301 19P
CN401 19P
TU STD IN
GND (AU)
TU AU (L) IN
TU AU (R) IN
MOD AU OUT
AN 12V
-30V
TU VIDEO
AN GND
MOD VIDEO OUT
AN 5V
SW 9V
V.OSD IN
MOD CONT
EX. V SYNC
OSD V COLOR CONT
CN302 19P
CN402 19P
V. OSD OUT
D 6V
D GND
MTR 12V
MTR GND
C+ DATA
C+ CLK
C+ DET
SI BUS
SO BUS
S CLK
COSMO RST
COSMO CS
POWER LED
POWER/EJECT
SIRCS
PT-96 BOARD
CN403 22P
CN301 22P
D 5V
D GND
LCD CS
SCK
SI
PAUSE LED
B.LIGHT VCC
H.S.REW LED
B.LIGHT GND
A/D 7
A/D 6
A/D 5
A/D 4
A/D 3
REW LED
RVS LED
FWD LED
FF LED
REC LED
TIMER LED
B.L.LED
MF-242 BOARD
CN504 4P WHT
CN601 4P WHT
PL-50
B.LIGHT GND
LAMP
LED A
LED B
PL-24 BOARD
CN303 6P
D 5V
A/D 5
A/D 4
D 5V
A/D 6
GND
SWITCH BLOCK
CN302 13P
STOP
COMMON 2
PLAY
RING 0
COMMON 1
RING 1
RING 2
FWD/RVS
REW LED
D 5V
RVS LED
FWD LED
FF LED
S303 DUAL MODE SHUTTLE
TO TUNER PACK
PINケーブル
RFU
OUT
IN
AERIAL
SORTIE
ENTREE
ANTENNE
(B MODEL ONLY)
CN405 13P
CN501 13P
V OUT
AN GND
V SYNC
OSD V COLOR CONT
H DET
EXH SYNC
S CLK
SI BUS
OSD CS
AN 5V
EX.V SYNC
D GND
V IN
CG-20 BOARD
-181
ARD
L2 A (R) IN
GND (AU)
L2 A (L) IN
AN GND
L2 VIDEO IN
UNSW 5V
D GND
POWER/EJECT
POWER LED
SIRCS
N.C.
CN657 4P BLK
RF MONI (L)
GND (AU)
BIAS (GND)
BIAS
CHECK PIN
MF-243 BOARD
R
L
VIDEO
AUDIO
PJ401
LINE IN 2
D
G
VIDEO
AUDIO
PJ601
ENTREE LIGNE 2
(B MODEL ONLY)

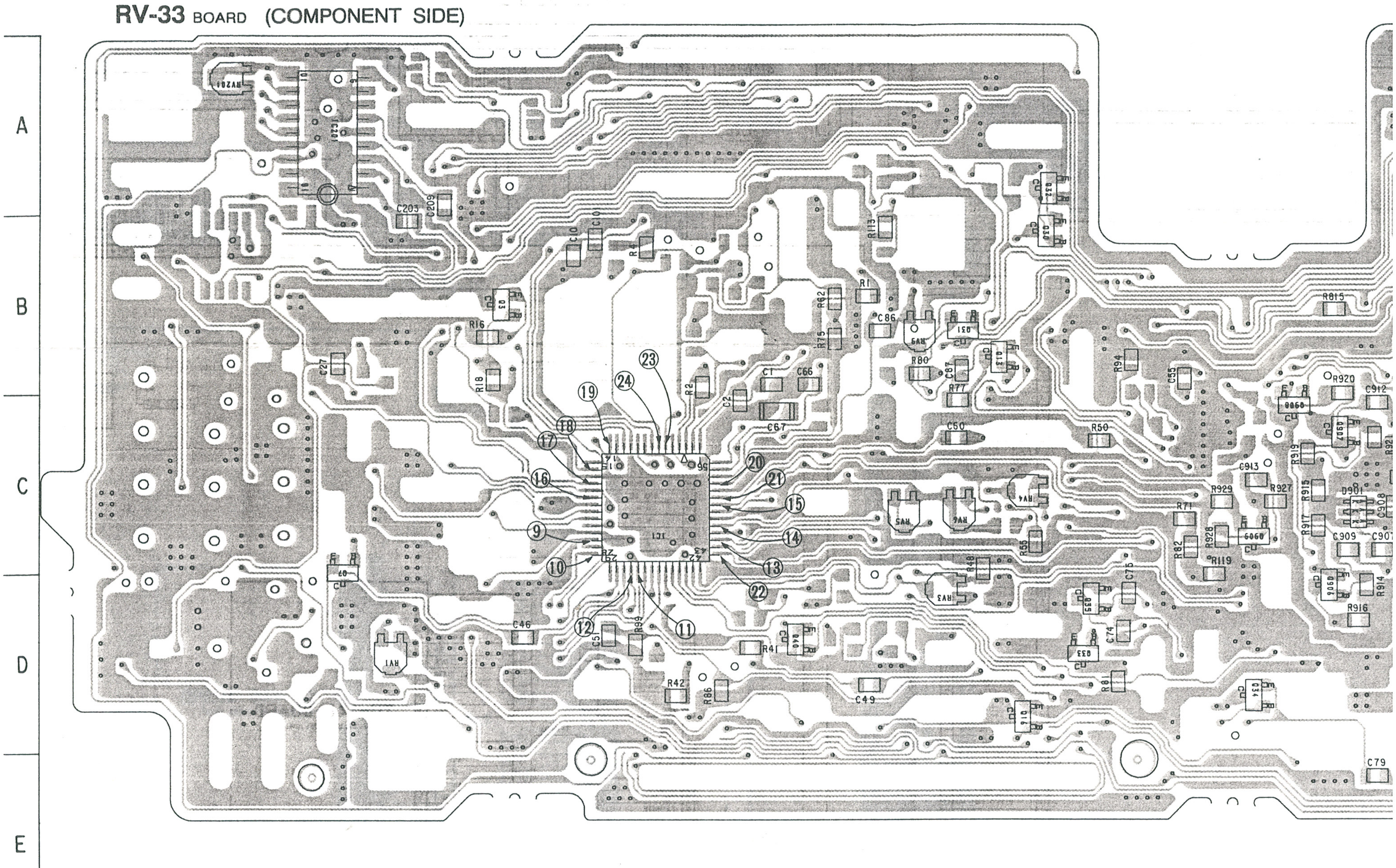
## 4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

### RV-33 (HEADAMP, VIDEO) PRINTED WIRING BOARD

– Ref. No.: RV-33 Board; 1,000 series –

- There is no indication for destination in the printed wiring board diagram.

**RV-33** BOARD (COMPONENT SIDE)


A
B
C
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E
RV201
IC201
C203
C202
C10
C210
R4
R113
Q32
Q30
Q3
R16
R18
C27
R1
R62
R75
C86
Q51
SAW
R80
C87
R77
R94
C55
R815
R920
C912
C913
R929
R927
D901
C908
C909
C907
R928
R119
R917
R915
R914
R916
C1
C66
C2
C67
C50
R50
R2
IC1
R71
R82
R55
RV4
SAW
RV3
R48
C75
Q35
C74
Q33
R81
Q34
C46
C51
R99
R41
Q40
C49
Q10
RV1
Q7
R42
R86
C79
⑨
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⑭
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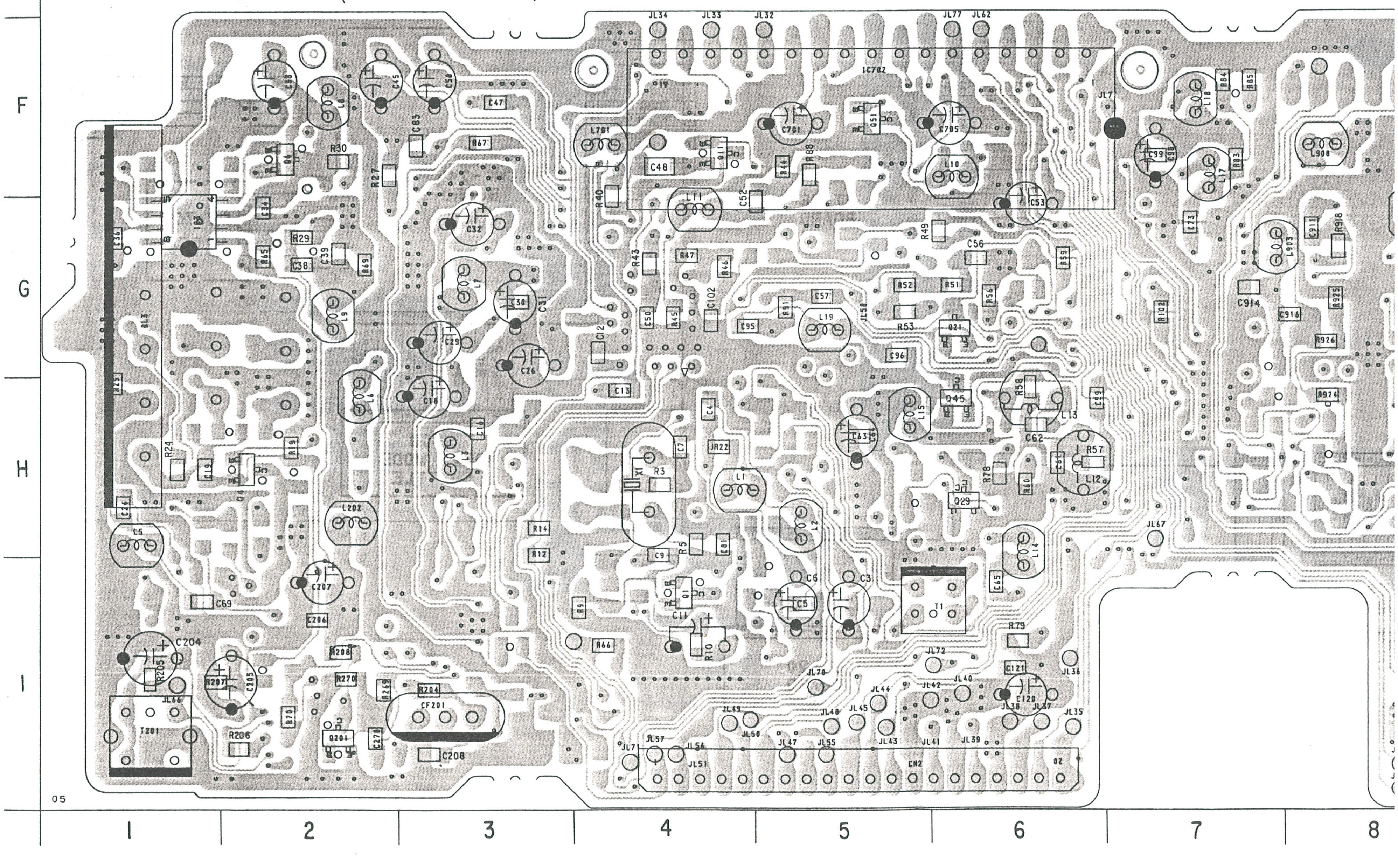
**RV-33** BOARD (CONDUCTOR SIDE)


F
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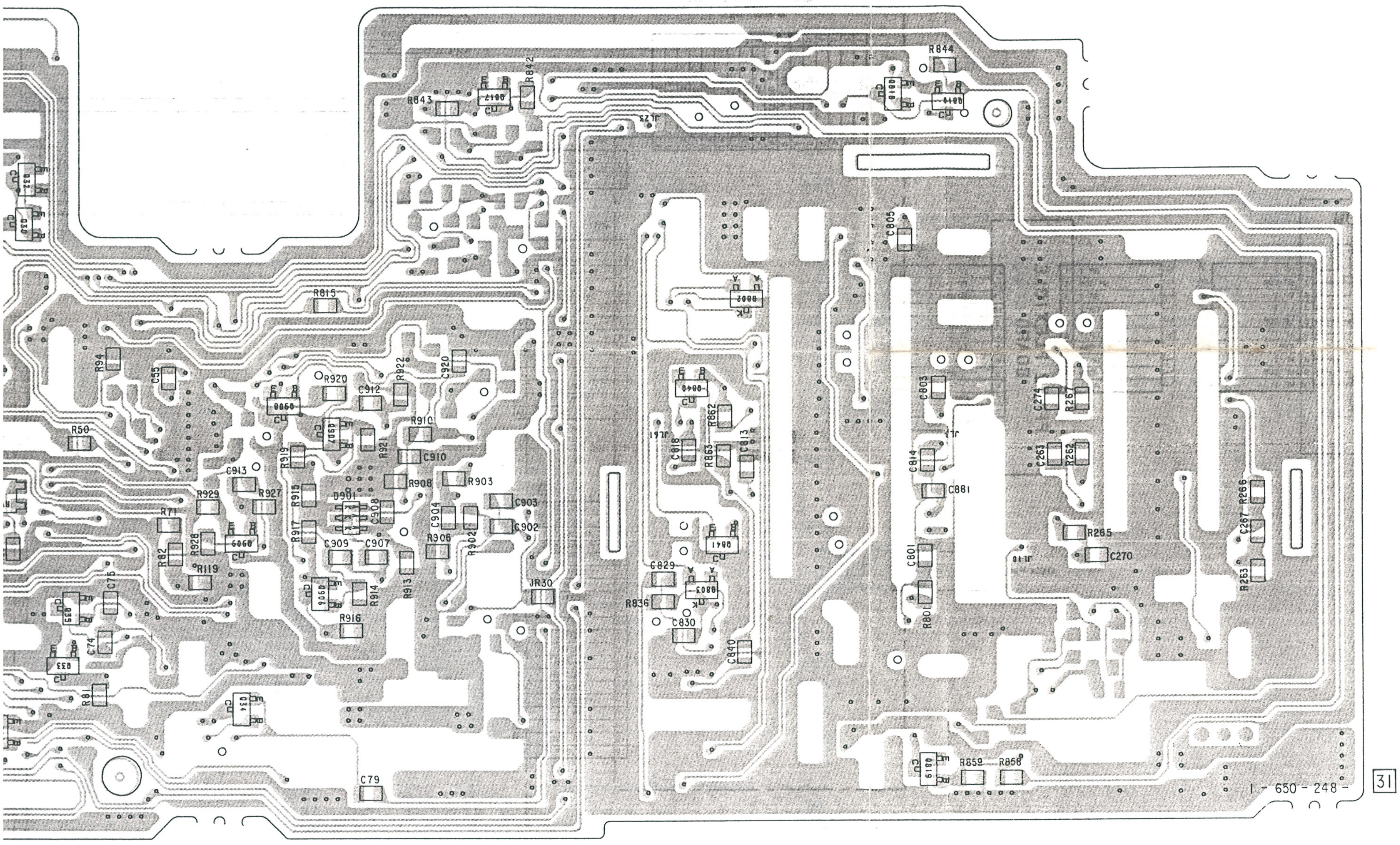
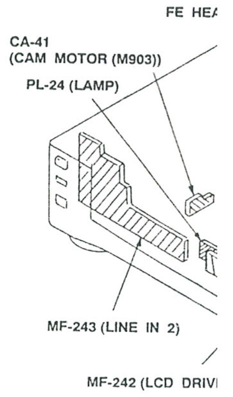
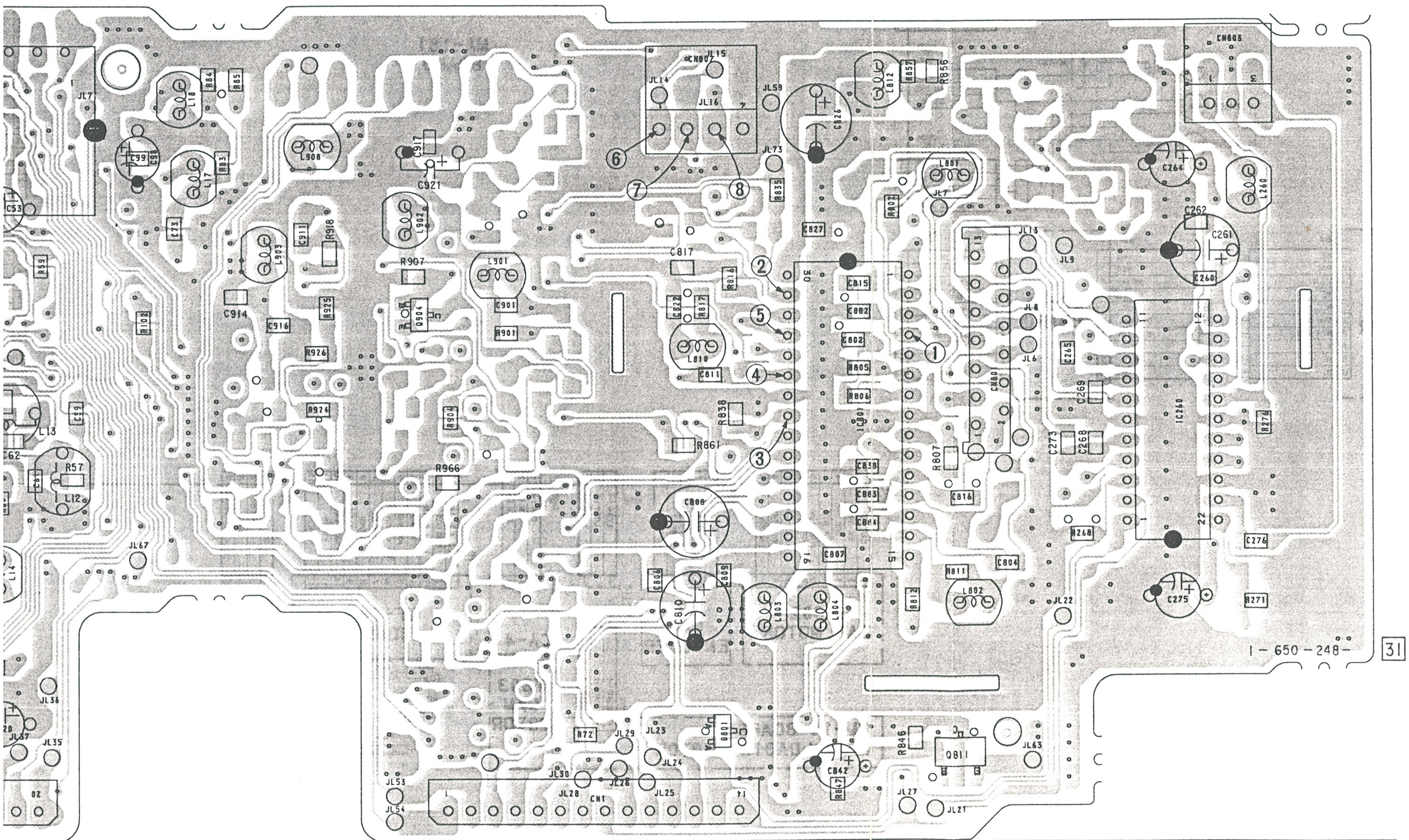
JL34
JL33
JL32
JL77
JL62
IC702
JL7
C48
C45
C58
C47
C83
L6
R30
R67
L701
L10
C785
C781
Q11
R88
LF1
C52
R40
C53
IC8
C34
R29
C38
C39
R27
C32
R65
R43
R47
R46
R49
C56
R59
L9
L7
C30
C31
C29
C26
C12
C50
R45
C102
C95
C57
L19
R52
R51
R53
Q21
C96
R56
C13
L4
C18
C14
L3
C4
C7
JR22
X1
R3
L1
C43
L15
Q45
R58
L13
C62
R57
L12
R24
C19
R19
L202
R14
R12
C9
R5
C81
L2
R78
Q29
L14
C45
C5
C207
C69
C206
Q1
C11
R10
C6
C5
C3
T1
R79
C204
R205
C205
R207
R208
R270
R269
R204
CF201
R78
R206
Q201
C278
C208
T201
R66
R9
JL72
JL70
JL44
JL42
JL40
C121
C120
JL36
JL49
JL50
JL48
JL45
JL46
JL38
JL37
JL35
JL57
JL56
JL51
JL47
JL55
JL43
JL41
JL39
CN2
L18
R84
R85
C99
C98
L17
R83
L908
C73
L903
C911
R918
C914
C916
R925
R926
R924
JL67
R902
05




FE HEA
CA-41
(CAM MOTOR (M903))
PL-24 (LAMP)
MF-243 (LINE IN 2)
MF-242 (LCD DRIV


1-650-248-
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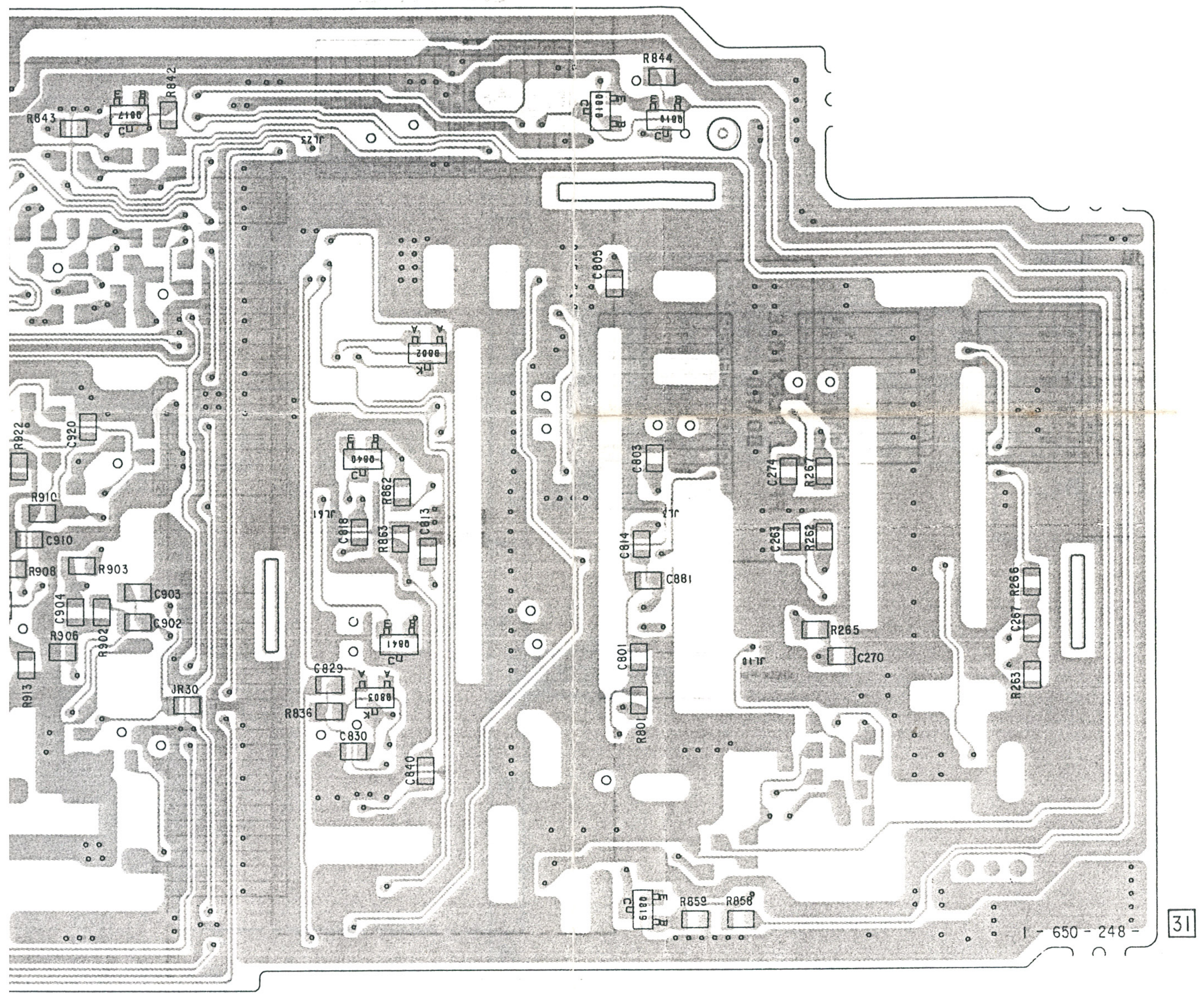
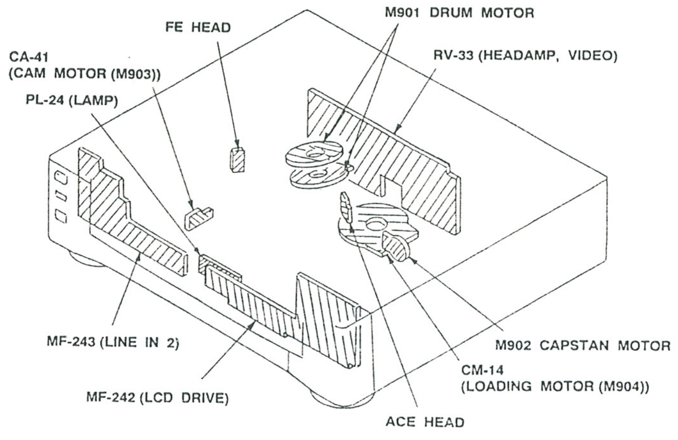
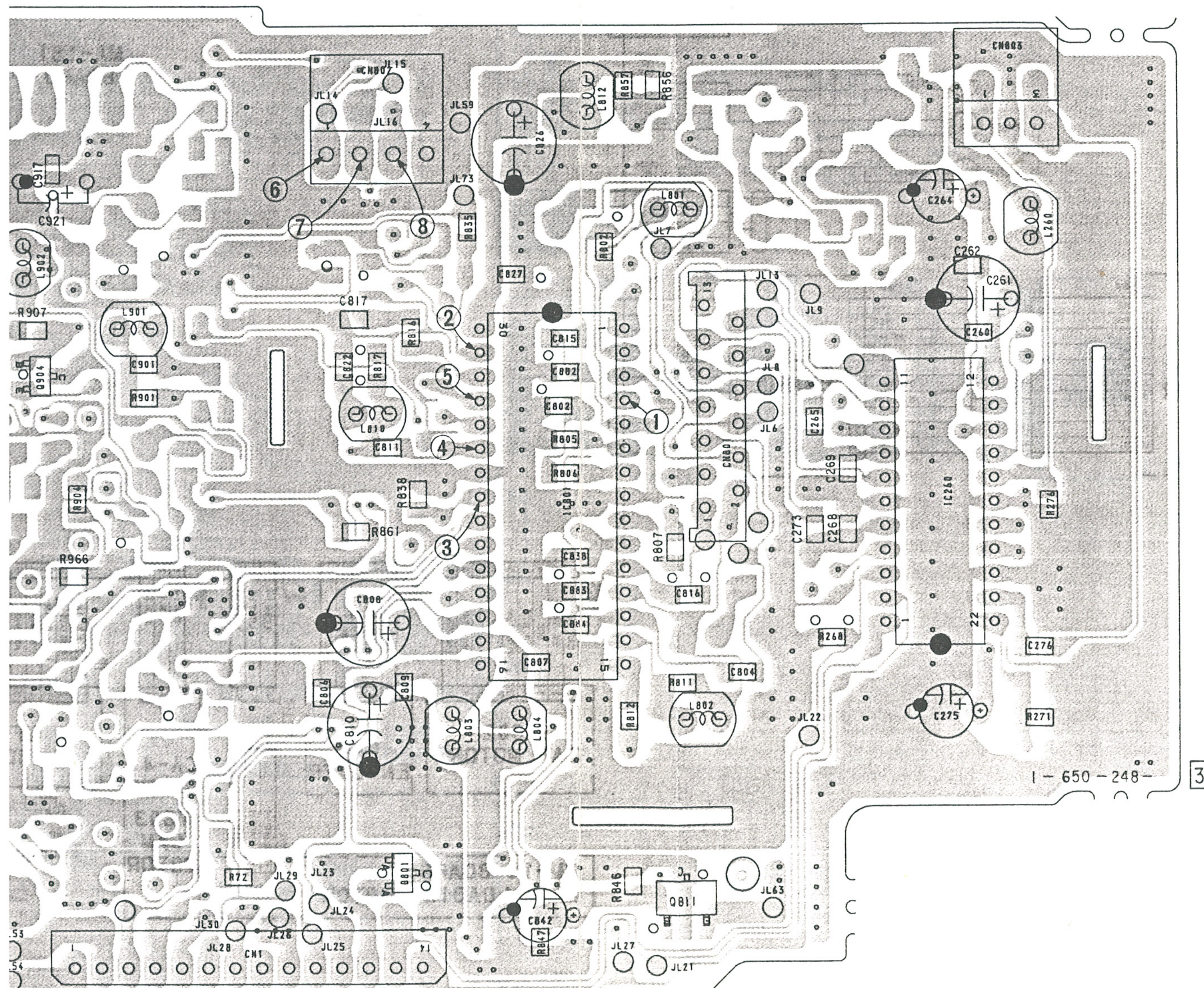
13

RV-33 BOARD

| | |
|---|---|
| CN001 | I-9 |
| CN002 | I-5 |
| CN801 | G-11 |
| CN802 | F-10 |
| CN803 | F-13 |
| D801 | I-10 |
| D802 | B-10 |
| D803 | D-10 |
| D901 | C-8 |
| IC001 | C-4 |
| IC003 | G-1 |
| IC201 | A-2 |
| IC260 | G-12 |
| IC702 | F-5 |
| IC801 | H-11 |
| Q001 | I-4 |
| Q003 | B-3 |
| Q004 | H-2 |
| Q006 | F-2 |
| Q007 | C-2 |
| Q011 | F-4 |
| Q013 | B-6 |
| Q016 | D-6 |
| Q021 | G-6 |
| Q029 | H-6 |
| Q030 | B-6 |
| Q031 | B-6 |
| Q032 | A-6 |
| Q033 | D-6 |
| Q034 | D-7 |
| Q035 | D-6 |
| Q040 | D-5 |
| Q045 | H-6 |
| Q051 | F-5 |
| Q201 | I-2 |
| Q810 | A-11 |
| Q811 | I-11 |
| Q817 | A-9 |
| Q818 | A-11 |
| Q819 | D-11 |
| Q840 | B-10 |
| Q841 | C-10 |
| Q904 | G-8 |
| Q906 | D-8 |
| Q907 | C-8 |
| Q908 | C-8 |
| Q909 | C-7 |




FE HEAD
M901 DRUM MOTOR
CA-41
(CAM MOTOR (M903))
RV-33 (HEADAMP, VIDEO)
PL-24 (LAMP)
MF-243 (LINE IN 2)
M902 CAPSTAN MOTOR
CM-14
(LOADING MOTOR (M904))
MF-242 (LCD DRIVE)
ACE HEAD


1 - 650 - 248 -
31
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13

RV-33 BOARD

| | |
|---|---|
| CN001 | I-9 |
| CN002 | I-5 |
| CN801 | G-11 |
| CN802 | F-10 |
| CN803 | F-13 |
| D801 | I-10 |
| D802 | B-10 |
| D803 | D-10 |
| D901 | C-8 |
| IC001 | C-4 |
| IC003 | G-1 |
| IC201 | A-2 |
| IC260 | G-12 |
| IC702 | F-5 |
| IC801 | H-11 |
| Q001 | I-4 |
| Q003 | B-3 |
| Q004 | H-2 |
| Q006 | F-2 |
| Q007 | C-2 |
| Q011 | F-4 |
| Q013 | B-6 |
| Q016 | D-6 |
| Q021 | G-6 |
| Q029 | H-6 |
| Q030 | B-6 |
| Q031 | B-6 |
| Q032 | A-6 |
| Q033 | D-6 |
| Q034 | D-7 |
| Q035 | D-6 |
| Q040 | D-5 |
| Q045 | H-6 |
| Q051 | F-5 |
| Q201 | I-2 |
| Q810 | A-11 |
| Q811 | I-11 |
| Q817 | A-9 |
| Q818 | A-11 |
| Q819 | D-11 |
| Q840 | B-10 |
| Q841 | C-10 |
| Q904 | G-8 |
| Q906 | D-8 |
| Q907 | C-8 |
| Q908 | C-8 |
| Q909 | C-7 |

# RV-33 (HEADAMP, VIDEO) SCHEMATIC DIAGRAM

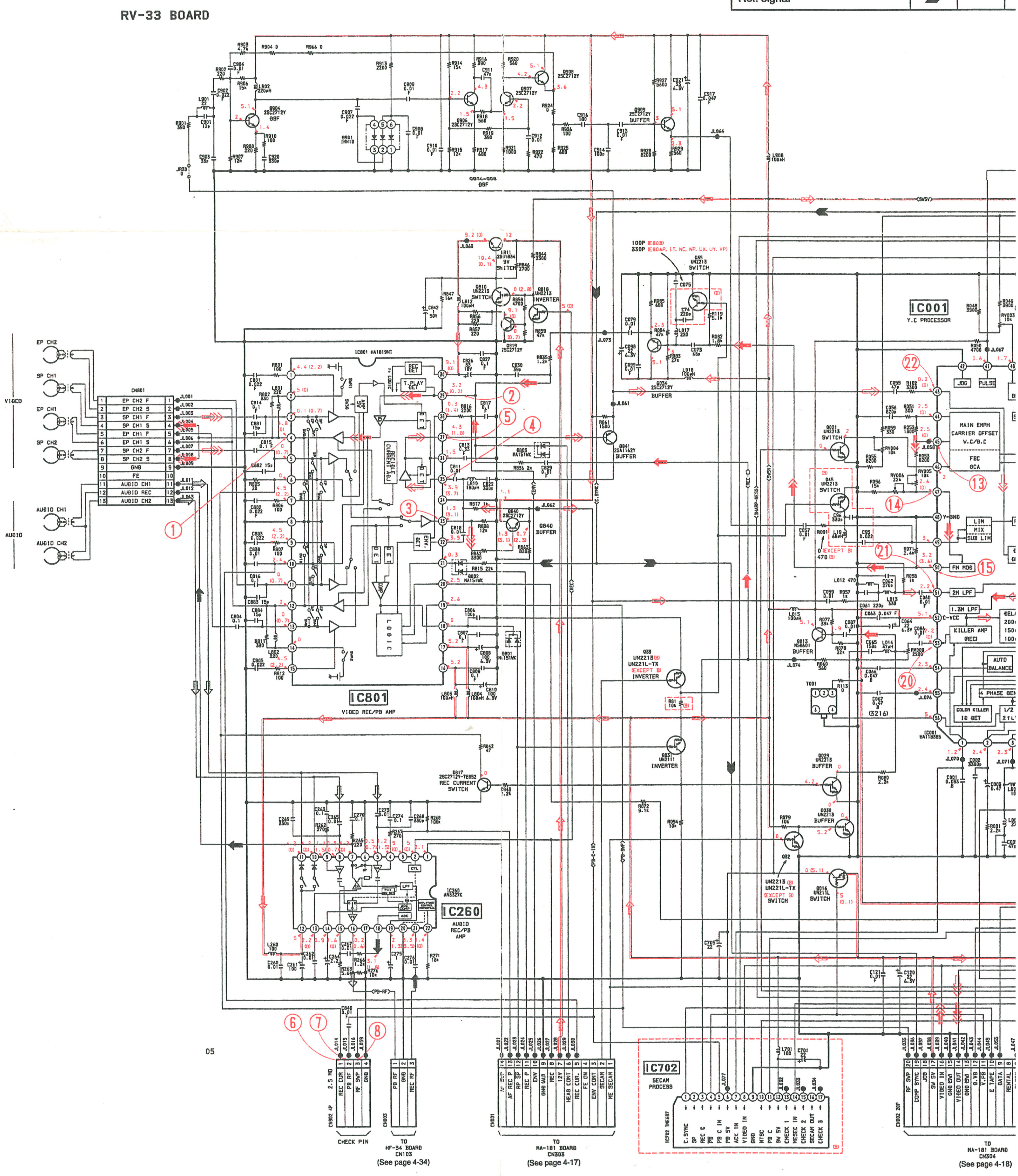
– Ref. No.: RV-33 Board; 1,000 series –

- Signal path

| | VIDEO SIGNAL | | | AUDIO SIGNAL |
|---|---|---|---|---|
| | CHROMA | Y | Y/CHROMA | |
| REC | ➡ | ➡➡ | ➡➡➡ | ➡ |
| PB | ⇨ | ⇨⇨ | ⇨⇨⇨ | ⇨ |

- Signal path

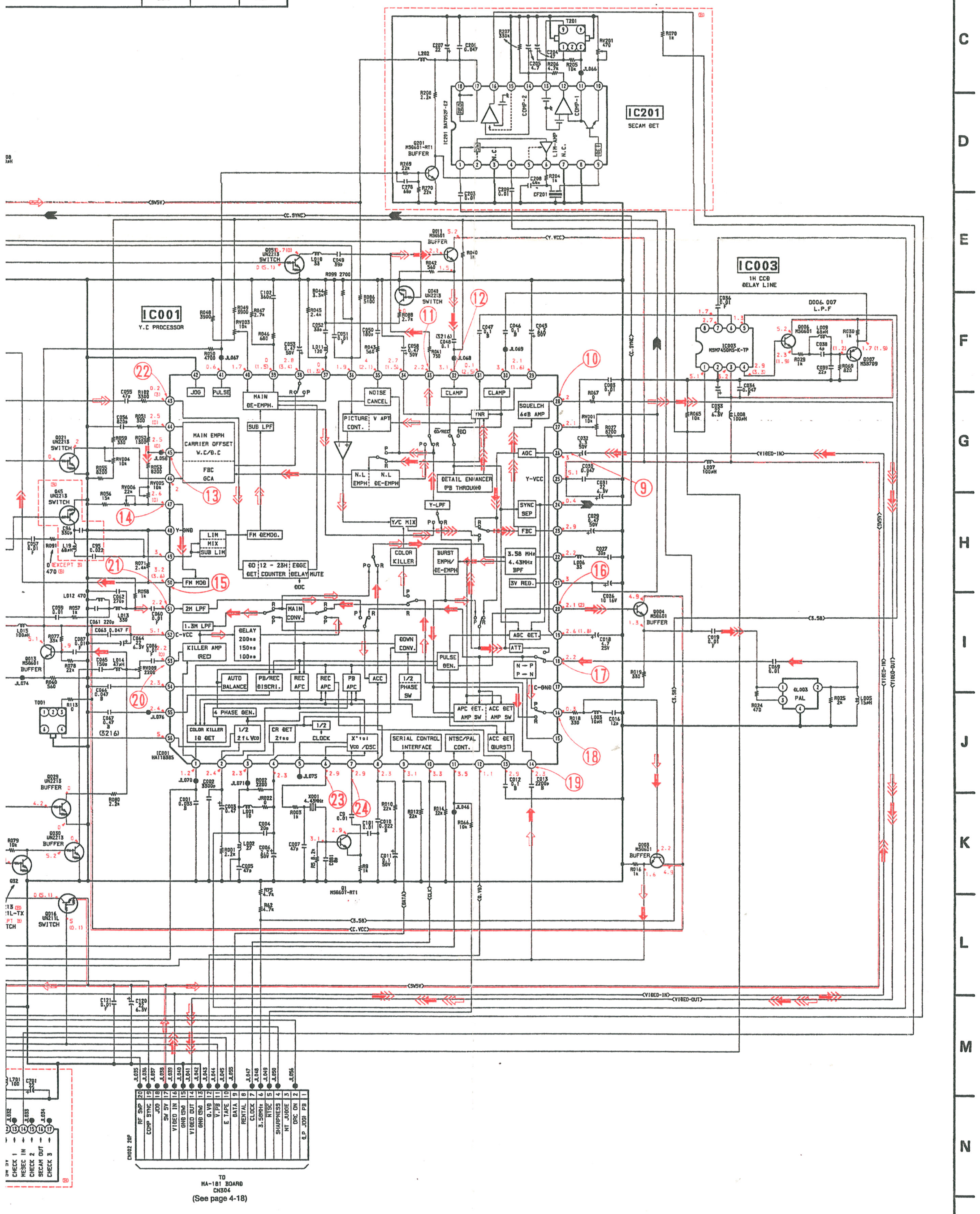
| | REC | REC/PB |
|---|---|---|
| Drum speed servo | | ▷ |
| Drum phase servo | | ▷▷ |
| Drum servo (speed and phase) | | ▷▷▷ |
| Capstan speed servo | | ⊳ |
| Capstan phase servo | ➡➡ | ⊳⊳ |
| Capstan servo (speed and phase) | | ⊳⊳⊳ |
| Ref. signal | ➡ | |


RV-33 BOARD
VIDEO
AUDIO
EP CH2
SP CH1
EP CH1
SP CH2
AUDIO CH1
AUDIO CH2
CN801
EP CH2 F
EP CH2 S
SP CH1 F
SP CH1 S
EP CH1 F
EP CH1 S
SP CH2 F
SP CH2 S
GND
FE
AUDIO CH1
AUDIO REC
AUDIO CH2
IC801 HA11819NT
IC801
VIDEO REC/PB AMP
LOGIC
IC260
AN3327K
IC260
AUDIO REC/PB AMP
IC702
SECAM PROCESS
IC001
Y.C PROCESSOR
MAIN EMPH
CARRIER OFFSET
W.C/D.C
FBC
GCA
LIM
MIX
SUB LIM
FM MOD
2M LPF
1.3M LPF
KILLER AMP
AUTO BALANCE
4 PHASE GEN
COLOR KILLER
ID DET
Q904-908
05F
Q909
2SC2712Y
BUFFER
Q810
UN2213
SWITCH
Q818
UN2213
INVERTER
Q841
2SA1162Y
BUFFER
Q840
BUFFER
Q817
2SC2712Y-TE85Z
REC CURRENT
SWITCH
Q33
UN2213
UN221L-TX
(EXCEPT B)
INVERTER
Q031
UN2111
INVERTER
Q029
UN2213
BUFFER
Q030
UN2213
BUFFER
Q32
UN2213
UN221L-TX
(EXCEPT B)
SWITCH
Q016
UN211L
SWITCH
Q013
M58661
BUFFER
Q021
UN2213
SWITCH
Q45
UN2213
SWITCH
Q034
2SC2712Y
BUFFER
CHECK PIN
TO
HF-34 BOARD
CN103
(See page 4-34)
TO
MA-181 BOARD
CN303
(See page 4-17)
TO
MA-181 BOARD
CN304
(See page 4-18)
REC CUR
PB RF
RF SWP
GND
PB RF
GND
REC RF
AF SW
AF REC P
RF SW
REC ENV
GND (AU)
REC
12V
HEAD CONT
REC CUR
FE ON
ENV CONT
SECAM
ME SECAM
C-SYNC
SP
REC C
PB
PB C IN
PB 5V
VIDEO IN
GND
NTSC
PB C
SW 5V
CHECK 1
MESECAM
CHECK 2
SECAM OUT
CHECK 3
RF SWP
COMP SYNC
JOG
SW 5V
VIDEO OUT
GND
V.VB
V.PB
E TAPE
DATA
RENTAL
①
②
③
④
⑤
⑥
⑦
⑧
⑬
⑭
⑮
⑳
(21)
(22)

al path

|  | REC | REC/PB | PB |
|---|---|---|---|
| eed servo |  | ▷ |  |
| ase servo |  | ▷▷ |  |
| rvo (speed and phase) |  | ▷▷▷ |  |
| speed servo |  | ▶ |  |
| phase servo | ▶» | ▶» | ▷» |
| servo (speed and phase) |  | ▶»» |  |
| al | ▶ |  | ▷ |

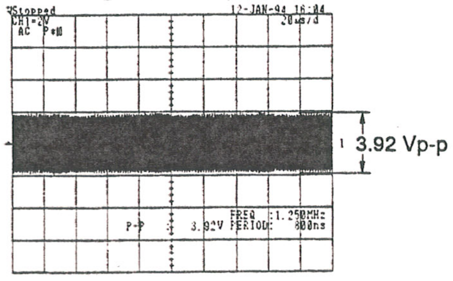
No mark : COMMON (REC)
( ) : PB
* : Impossible to measure the voltage at the marked points.



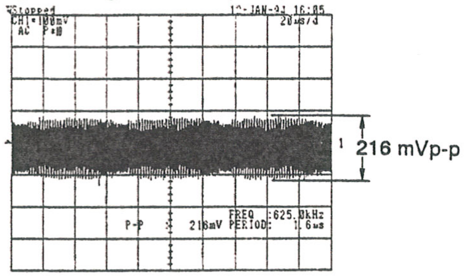
10
11
12
13
14
15
16
17
18
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
IC201
SECAM DET
T201
COMP-2
COMP-1
LIM-AMP
N.C
Q201 M5601-RT1 BUFFER
IC003
1H CCD DELAY LINE
IC003 MSM7450MS-K-TP
D006, 007 L.P.F
Q007 M58799
IC001
Y.C PROCESSOR
IC001 HA118585
Q011 M5601 BUFFER
Q051 UN2213 SWITCH
Q049 UN2213 SWITCH
Q021 UN2213 SWITCH
Q45 UN2213 SWITCH
Q013 M5601 BUFFER
Q029 UN2213 BUFFER
Q030 UN2213 BUFFER
Q016 UN2211L SWITCH
Q004 M5601 BUFFER
Q003 M5601 BUFFER
Q1 M5601-RT1
JOG
PULSE
MAIN DE-EMPH.
NOISE CANCEL
CLAMP
CLAMP
SQUELCH 6dB AMP
MAIN EMPH CARRIER OFFSET W.C/D.C
FBC GCA
SUB LPF
PICTURE CONT.
V APT
N.L EMPH
N.L DE-EMPH
DETAIL ENHANCER PB THROUGH
AGC
Y-VCC
SYNC SEP
FBC
Y-LPF
Y/C MIX
LIM MIX SUB LIM
FM DEMOD.
COLOR KILLER
BURST EMPH/ DE-EMPH
3.58 MHz 4.43MHz BPF
5V REG.
FM MOD
2H LPF
DO 12 - 23H EDGE DET COUNTER DELAY MUTE
MAIN CONV.
1.3M LPF
C-VCC
DELAY 200ns 150ns 100ns
KILLER AMP (REC)
DOWN CONV.
PULSE GEN.
AGC DET
ATT
N→P P→N
C-GND
AUTO BALANCE
PB/REC DISCRI.
REC AFC
REC APC
PB APC
ACC
1/2 PHASE SW
4 PHASE GEN.
APC DET. AMP SW
ACC DET AMP SW
COLOR KILLER ID DET
1/2 2 fL VCO
CR DET 2 fsc
1/2 CLOCK
X'tal VCO /OSC
SERIAL CONTROL INTERFACE
NTSC/PAL CONT.
ACC DET (BURST)
Y-GND
X001 4.43MHz
PAL
DL003
(C.SYNC)
(SW5V)
(Y.VCC)
(VIDEO-IN)
(VIDEO-OUT)
(3.58)
(C.VCC)
(DATA)
(CLK)
(S.VB)
(EXCEPT B)
T001
CN002 20P
20 RF SWP
19 COMP SYNC
18 JOG
17 SW 5V
16 VIDEO IN
15 GND (SW)
14 VIDEO OUT
13 GND (SW)
12 D.VB
11 V.PB
10 E TAPE
9 DATA
8 RENTAL
7 CLOCK
6 3.58MHz
5 NTSC
4 SHARPNESS
3 NT JUDGE
2 DRC ON
1 (LP JOG) PB
CHECK 1
MESEC IN
CHECK 2
SECAM OUT
CHECK 3
TO MA-181 BOARD CN304
(See page 4-18)

**RV-33 BOARD**

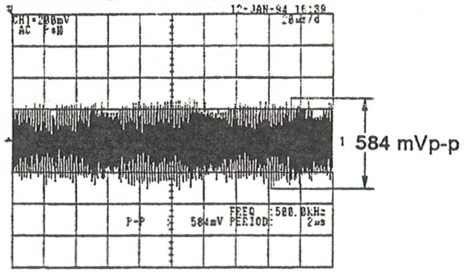
❶ IC801 ④ REC 20 μsec/DIV



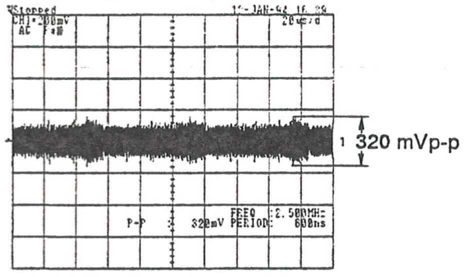
❷ IC801 ㉙ REC 20 μsec/DIV



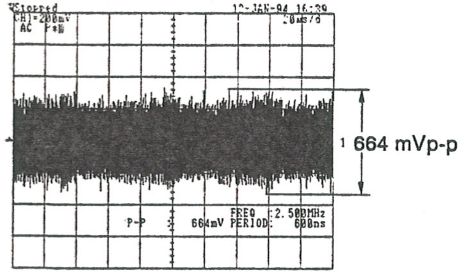
❸ IC801 ㉓ PB 20 μsec/DIV



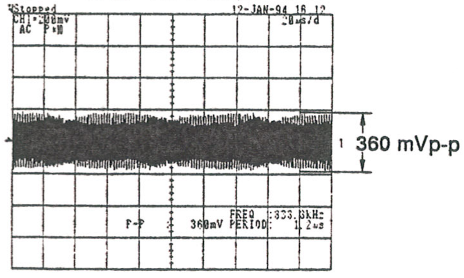
❹ IC801 ㉕ PB 20 μsec/DIV



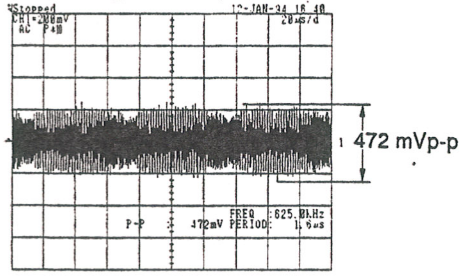
❺ IC801 ㉗ PB 20 μsec/DIV



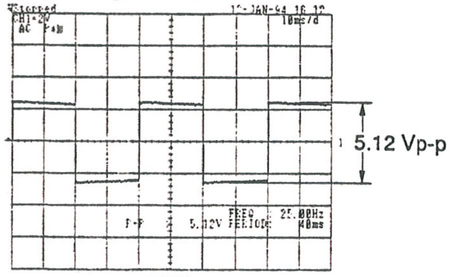
❻ CN802 ① REC 20 μsec/DIV



❼ CN802 ② PB 20 μsec/DIV

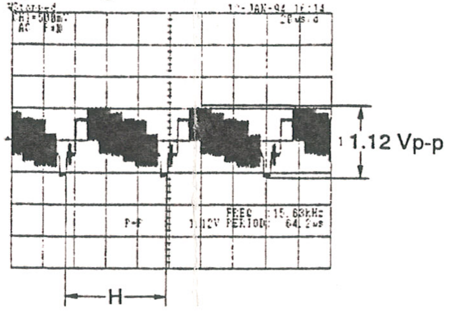


❽ CN802 ③ REC/PB

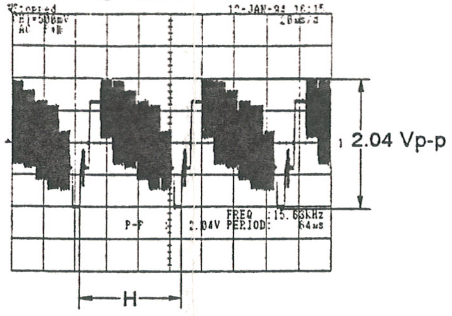


25 Hz

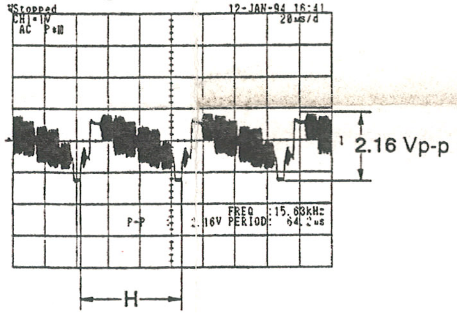
❾ IC001 ㉖ REC



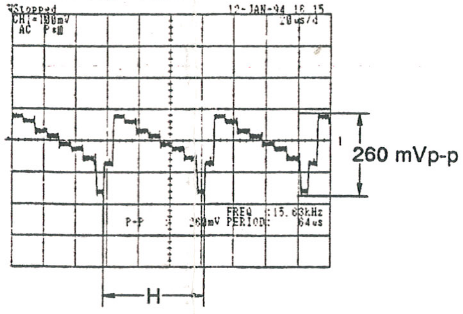
❿ IC001 ㉘ REC



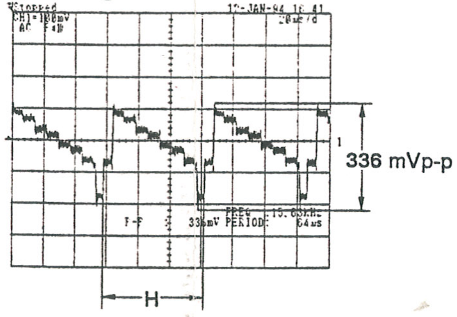
❿ IC001 ㉘ PB



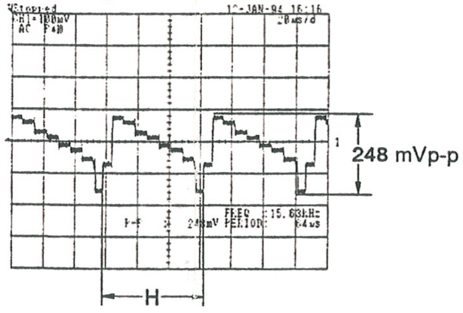
⓫ IC001 ㉝ REC



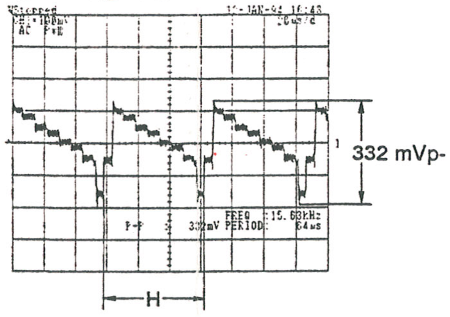
⓫ IC001 ㉝ PB



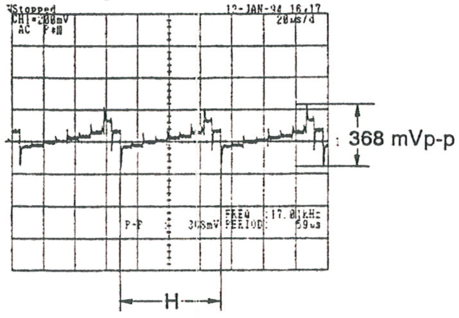
⓬ IC001 ㉜ REC



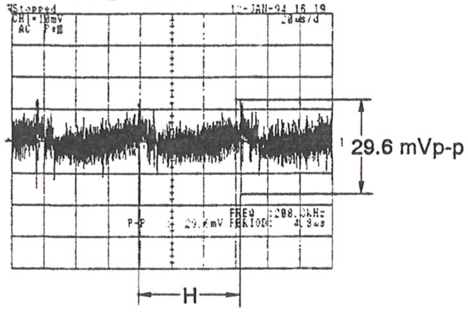
⓬ IC001 ㉜ PB



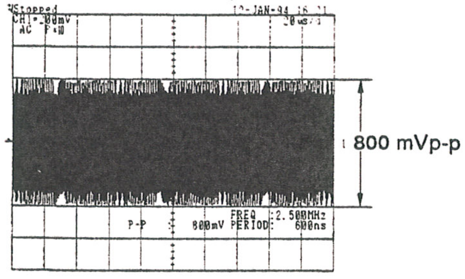
⓭ IC001 ㊺ REC



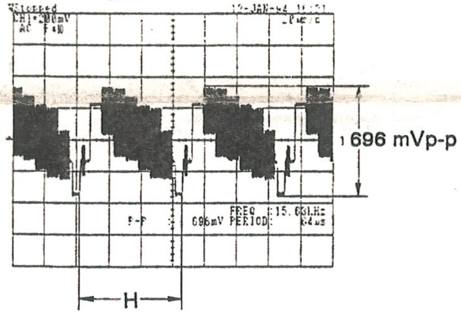
⓮ IC001 ㊼ REC



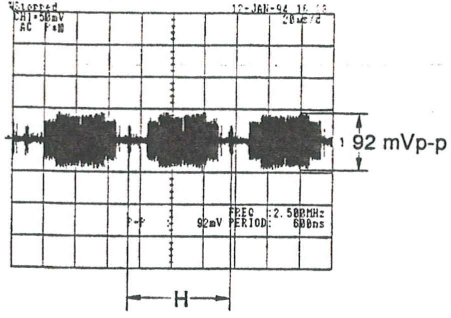
⓯ IC001 ㊿ REC 20 μsec/DIV



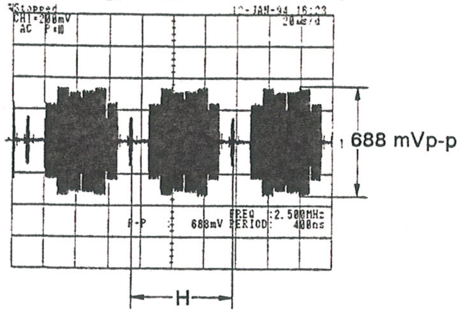
⓰ IC001 ⑳ REC



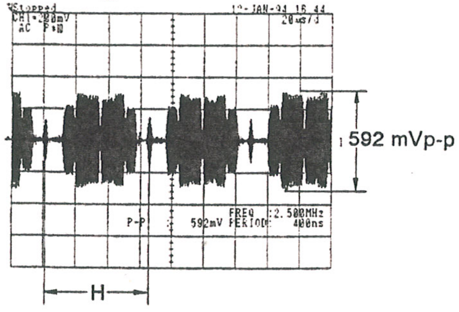
⓱ IC001 ⑱ REC



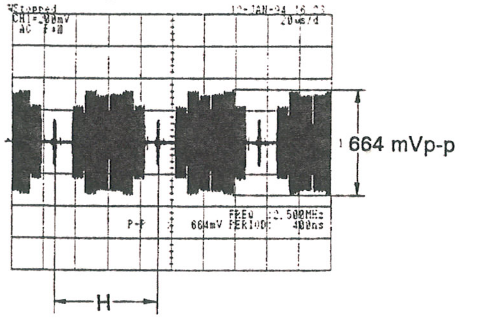
⓲ IC001 ⑯ REC



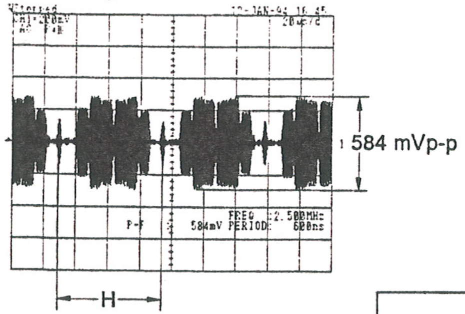
⓲ IC001 ⑯ PB



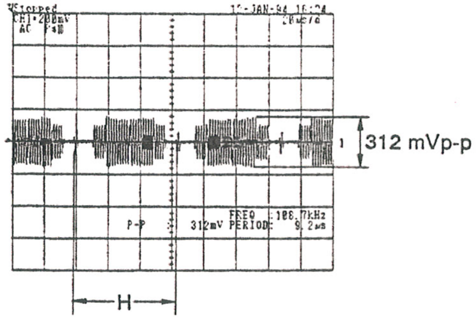
⓳ IC001 ⑭ REC



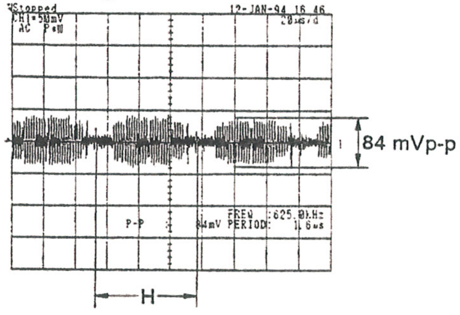
⓳ IC001 ⑭ PB



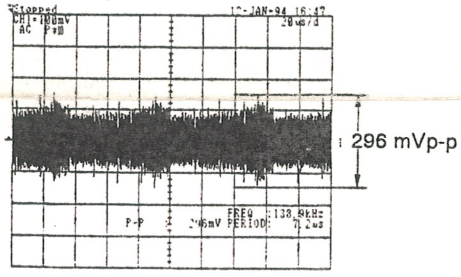
⓴ IC001 (53) REC



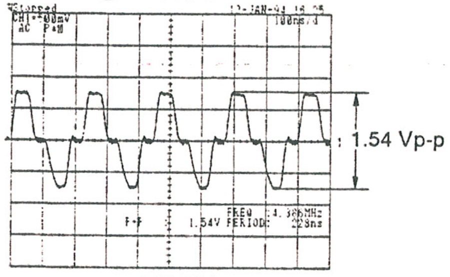
㉑ IC001 (51) PB



㉒ IC001 ㊸ PB

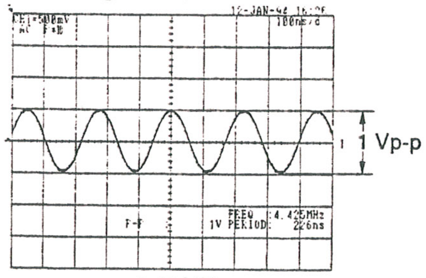


㉓ IC001 ⑥ REC/PB



4.43 MHz

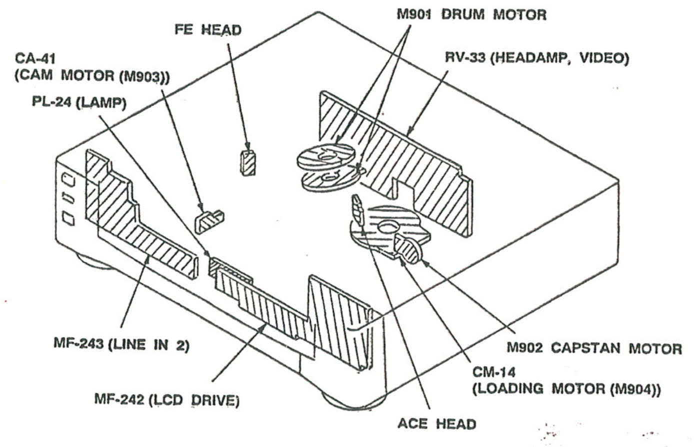
㉔ IC001 ⑦ REC/PB

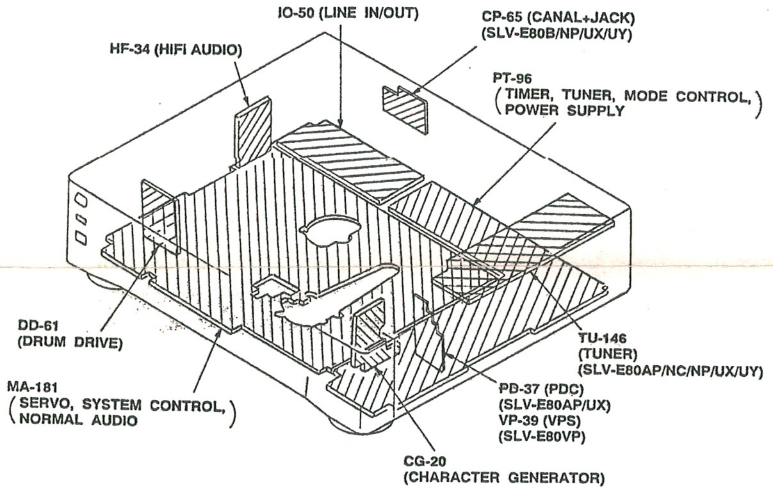


4.43 MHz

## MA-181 (SERVO, SYSTEM CONTROL, NORMAL AUDIO), MF-243 (LINE IN 2), DD-61 (DRUM DRIVE) PRINTED WIRING BOARDS

– Ref. No.: MA-181 and DD-61 Boards; 2,000 series, MF-243 Board; 5,000 series –


FE HEAD
M901 DRUM MOTOR
CA-41
(CAM MOTOR (M903))
RV-33 (HEADAMP, VIDEO)
PL-24 (LAMP)
MF-243 (LINE IN 2)
M902 CAPSTAN MOTOR
CM-14
(LOADING MOTOR (M904))
MF-242 (LCD DRIVE)
ACE HEAD

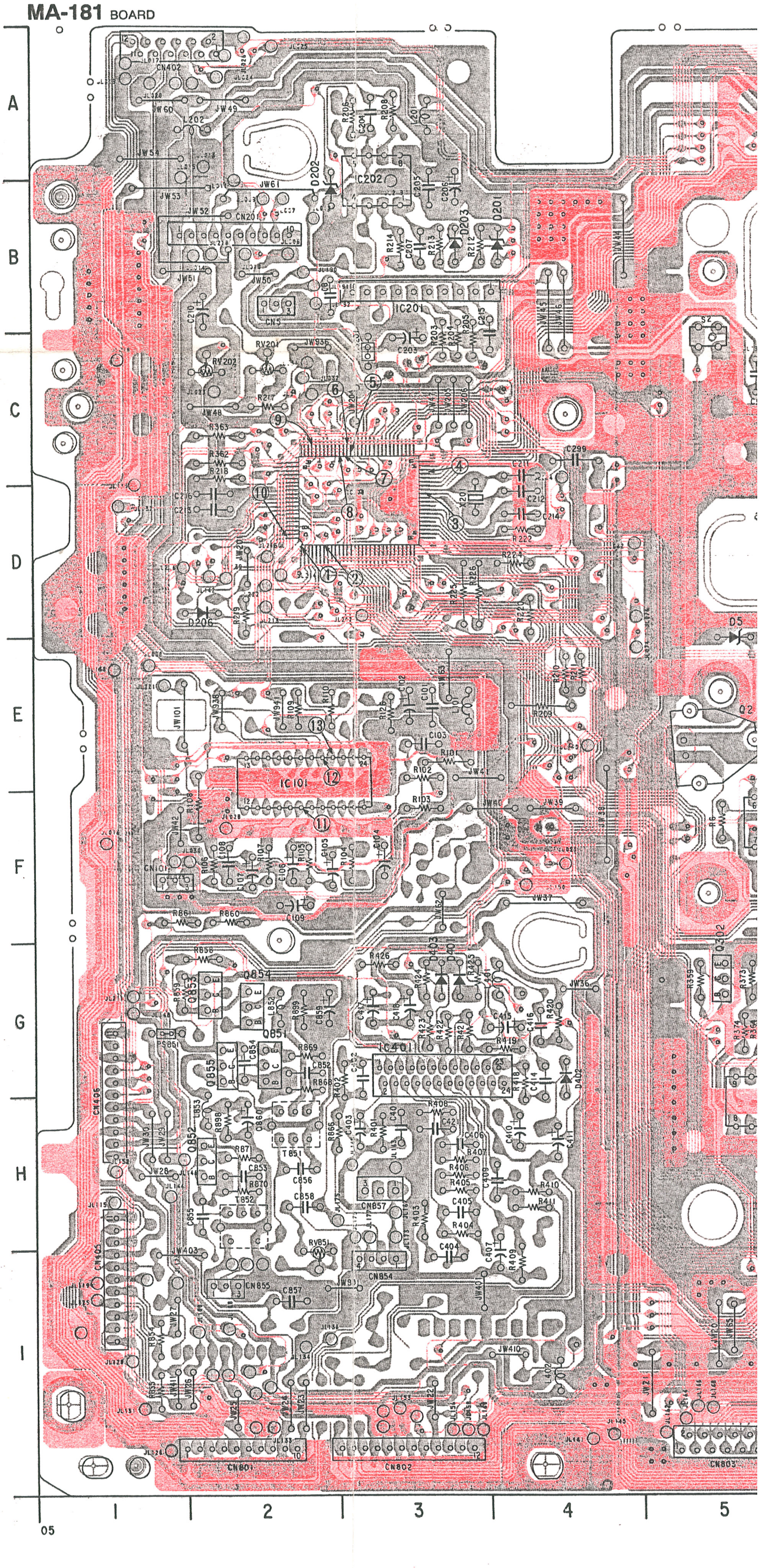

IO-50 (LINE IN/OUT)
CP-65 (CANAL+JACK)
(SLV-E80B/NP/UX/UY)
HF-34 (HIFI AUDIO)
PT-96
(TIMER, TUNER, MODE CONTROL, POWER SUPPLY)
DD-61
(DRUM DRIVE)
TU-146
(TUNER)
(SLV-E80AP/NC/NP/UX/UY)
MA-181
(SERVO, SYSTEM CONTROL, NORMAL AUDIO)
PD-37 (PDC)
(SLV-E80AP/UX)
VP-39 (VPS)
(SLV-E80VP)
CG-20
(CHARACTER GENERATOR)

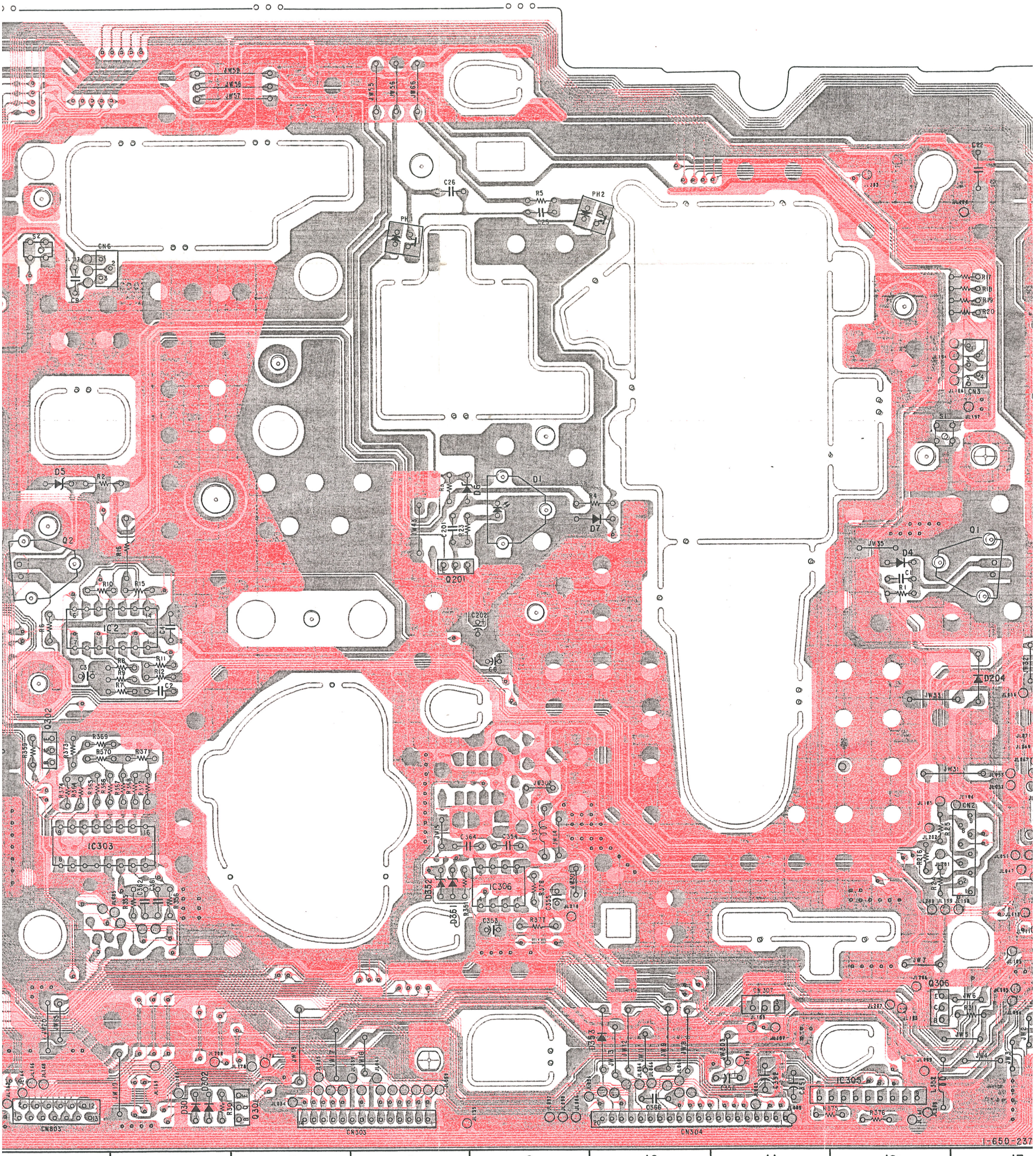
- There is no indication for destination in the printed wiring board diagram.

MA-181 BOARD

| | |
|---|---|
| CN002 | G-13 |
| CN003 | D-13 |
| CN005 | B-2 |
| CN006 | C-6 |
| CN101 | F-1 |
| CN201 | B-2 |
| CN301 | I-13 |
| CN302 | H-13 |
| CN303 | I-7 |
| CN304 | I-10 |
| CN307 | I-11 |
| CN402 | A-1 |
| CN405 | I-1 |
| CN406 | H-1 |
| CN801 | I-2 |
| CN802 | I-3 |
| CN803 | I-5 |
| CN854 | I-3 |
| CN855 | I-2 |
| CN857 | H-3 |
| D001 | E-9 |
| D004 | E-12 |
| D005 | D-5 |
| D006 | E-8 |
| D007 | E-10 |
| D201 | B-4 |
| D202 | A-2 |
| D203 | B-3 |
| D204 | F-13 |
| D206 | D-2 |
| D301 | I-6 |
| D302 | I-6 |
| D351 | H-8 |
| D352 | H-8 |
| D353 | I-10 |
| D401 | G-3 |
| D402 | G-4 |
| D403 | G-3 |
| IC002 | F-6 |
| IC101 | E-2 |
| IC201 | B-3 |
| IC202 | B-3 |
| IC203 | D-3 |
| IC303 | H-5 |
| IC305 | I-12 |
| IC306 | H-9 |
| IC401 | G-3 |
| Q001 | F-13 |
| Q002 | E-5 |
| Q201 | E-8 |
| Q301 | I-7 |
| Q302 | G-5 |
| Q306 | I-12 |
| Q851 | G-2 |
| Q852 | H-2 |
| Q853 | G-1 |
| Q854 | G-2 |
| Q855 | G-2 |

MA-181 BOARD


A
B
C
D
E
F
G
H
I
1
2
3
4
5
05
CN402
CN201
CN5
IC201
IC101
IC401
CN406
CN405
CN801
CN802
CN803
CN854
CN855
CN857
CN101
D202
D201
D203
D206
D402
Q851
Q852
Q854
Q855
C202
X201
RV201
RV202
RV851
JW60
JW49
JW54
JW53
JW52
JW51
JW50
JW61
JW48
JW101
JW36
JW37
JW38
JW39
JW410
S2
D5
Q2


JW58
JW57
JW55
JW56
JW66
C26
R5
C25
PH1
PH2
C22
S2
CN6
C9
R17
R18
R19
R20
CN3
S1
D5
R2
D1
R3
D6
R4
D7
JW48
C201
R23
Q201
Q2
R16
R10
R15
IC2
C4
R6
C3
R8
R11
R12
R7
C2
C202
C8
JW35
D4
C1
R1
Q1
D204
JW33
JW32
Q302
R369
R373
R370
R371
R359
IC303
JW31
CN2
R25
R216
C366
C354
IC306
D352
D351
R351
C353
R377
R378
JW7
CN307
Q306
JW6
R31
JW5
JW4
JW3
JW2
JW20
JW51
D301
D302
Q301
D353
JW13
JW12
JW11
JW9
JW8
JW10
C356
IC305
C366
R375
R376
CN803
CN303
CN304
1-650-237
5
6
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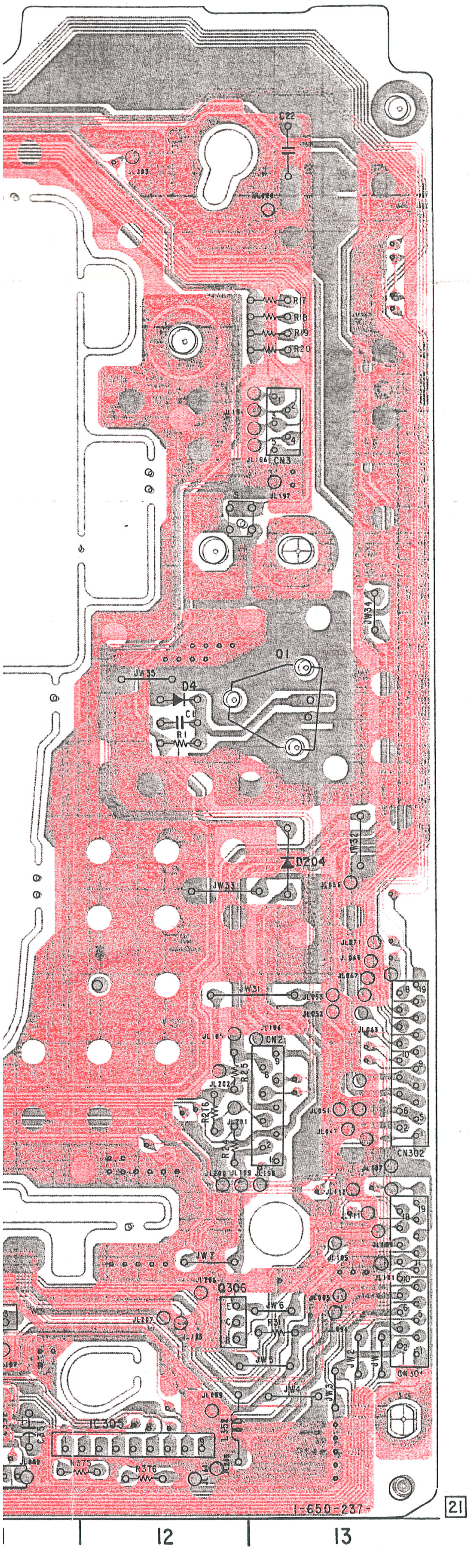
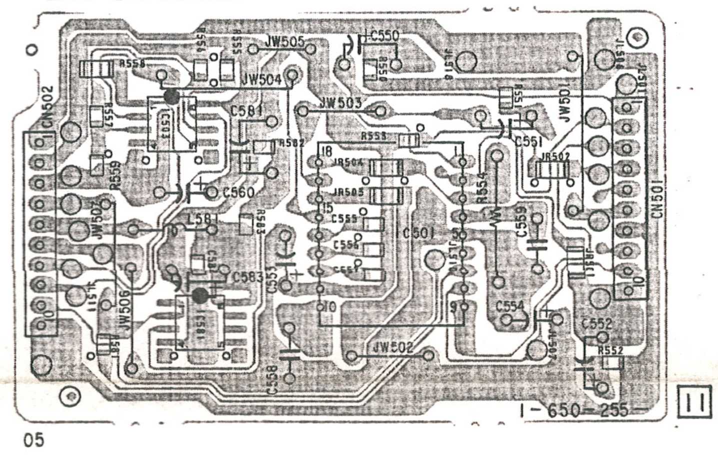
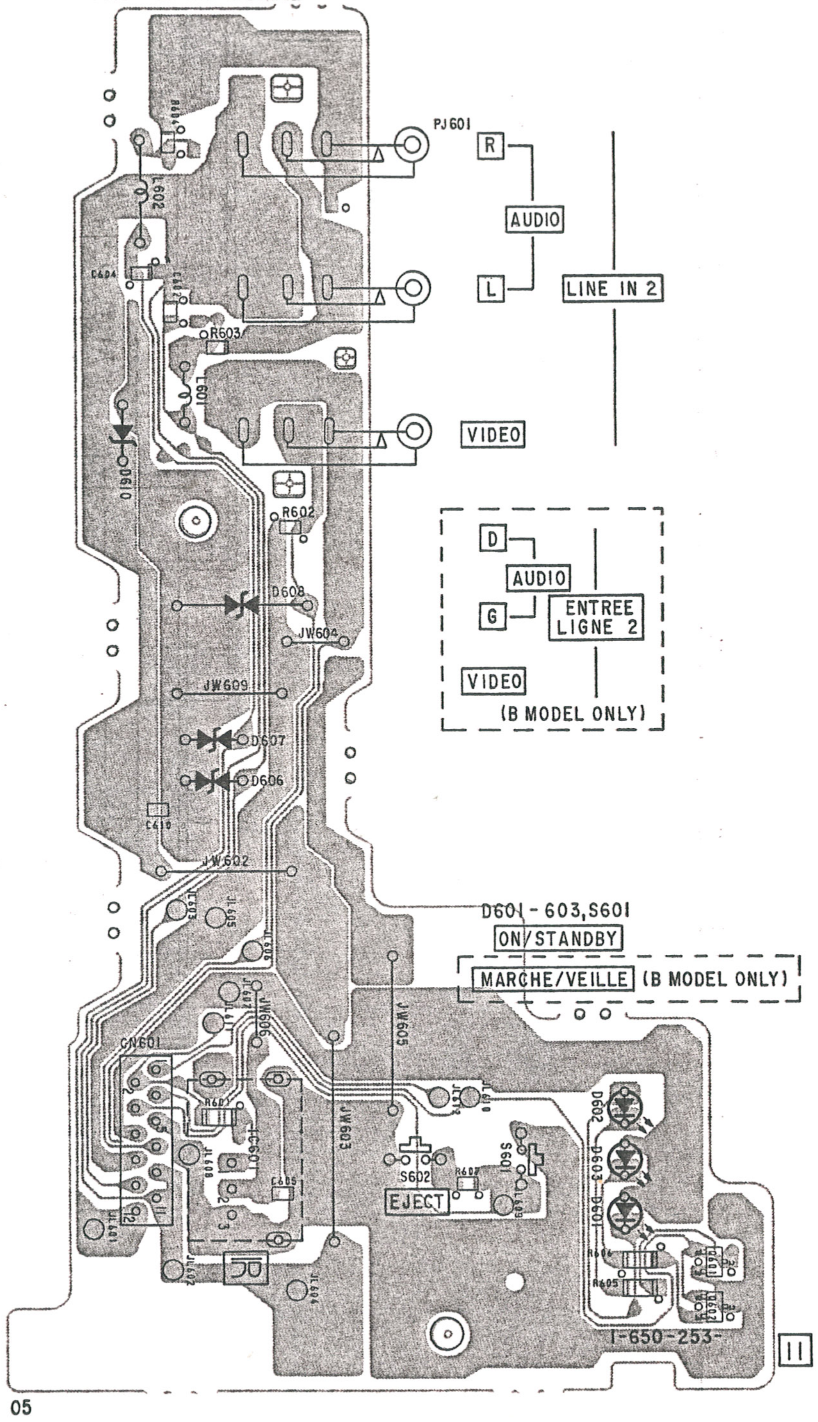
12
13


C22
R17
R18
R19
R20
CN3
S1
JW34
Q1
JW35
D4
C1
R1
D204
JW32
JW33
JW31
CN2
R25
R216
CN302
JW7
Q306
JW6
R311
JW5
JW4
JW3
JW2
CN301
IC305
R375
R376
1-650-237
21
12
13

## DD-61 BOARD


CN502
R558
JW505
C550
JW504
C581
JW503
JW501
C591
C560
L581
C553
C551
C561
C554
C552
JW502
C558
CN501
1-650-255
11
05

## MF-243 BOARD

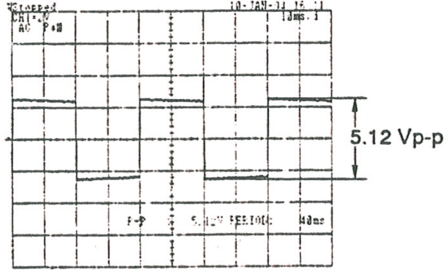

PJ601
R
AUDIO
L
LINE IN 2
VIDEO
D
AUDIO
G
ENTREE LIGNE 2
VIDEO
(B MODEL ONLY)
R603
R602
D608
JW604
JW609
D607
D606
JW602
D610
D601 - 603,S601
ON/STANDBY
MARCHE/VEILLE (B MODEL ONLY)
CN601
S602
EJECT
JW603
JW605
1-650-253
11
05

# MA-181 (SERVO, SYSTEM CONTROL, NORMAL AUDIO), MF-243 (LINE IN 2), DD-61 (DRUM DRIVE) SCHEMATIC DIAGRAM

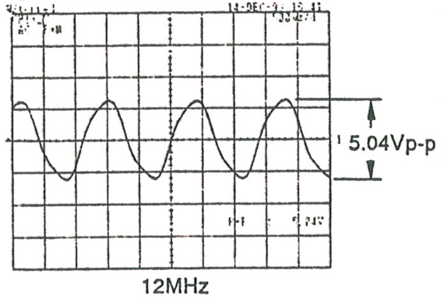
– Ref. No.: MA-181 and DD-61 Boards; 2,000 series, MF-243 Board; 5,000 series –

## MA-181 BOARD

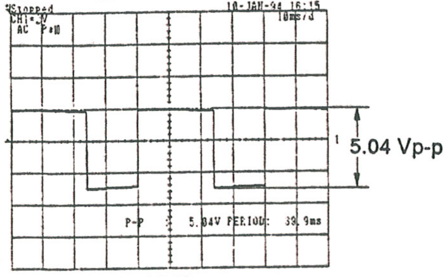
❶ IC203 ① REC/PB



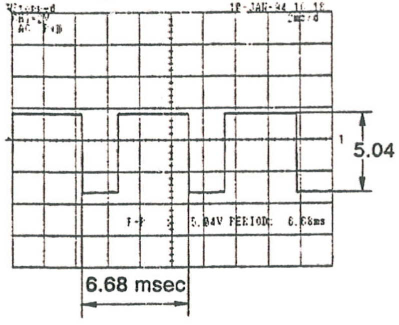
❸ IC203 ㊷ REC/PB



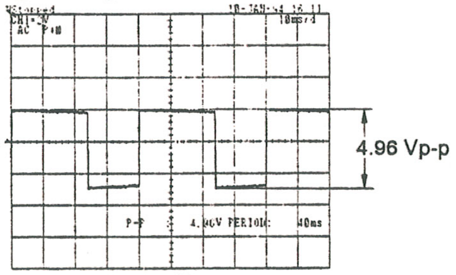
❺ IC203 ㊼ PB



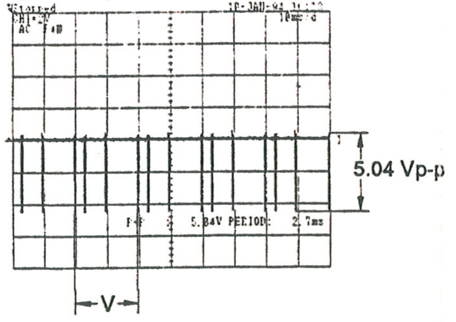
❼ IC203 ㊾ REC/PB



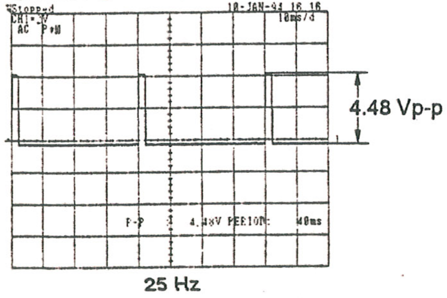
❷ IC203 ⑦ REC



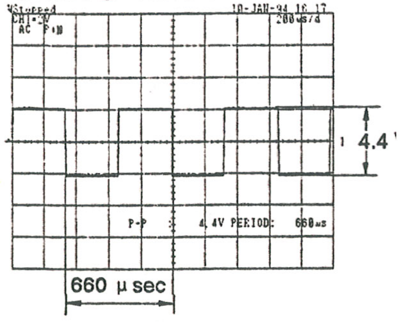
❹ IC203 ㊼ REC/PB

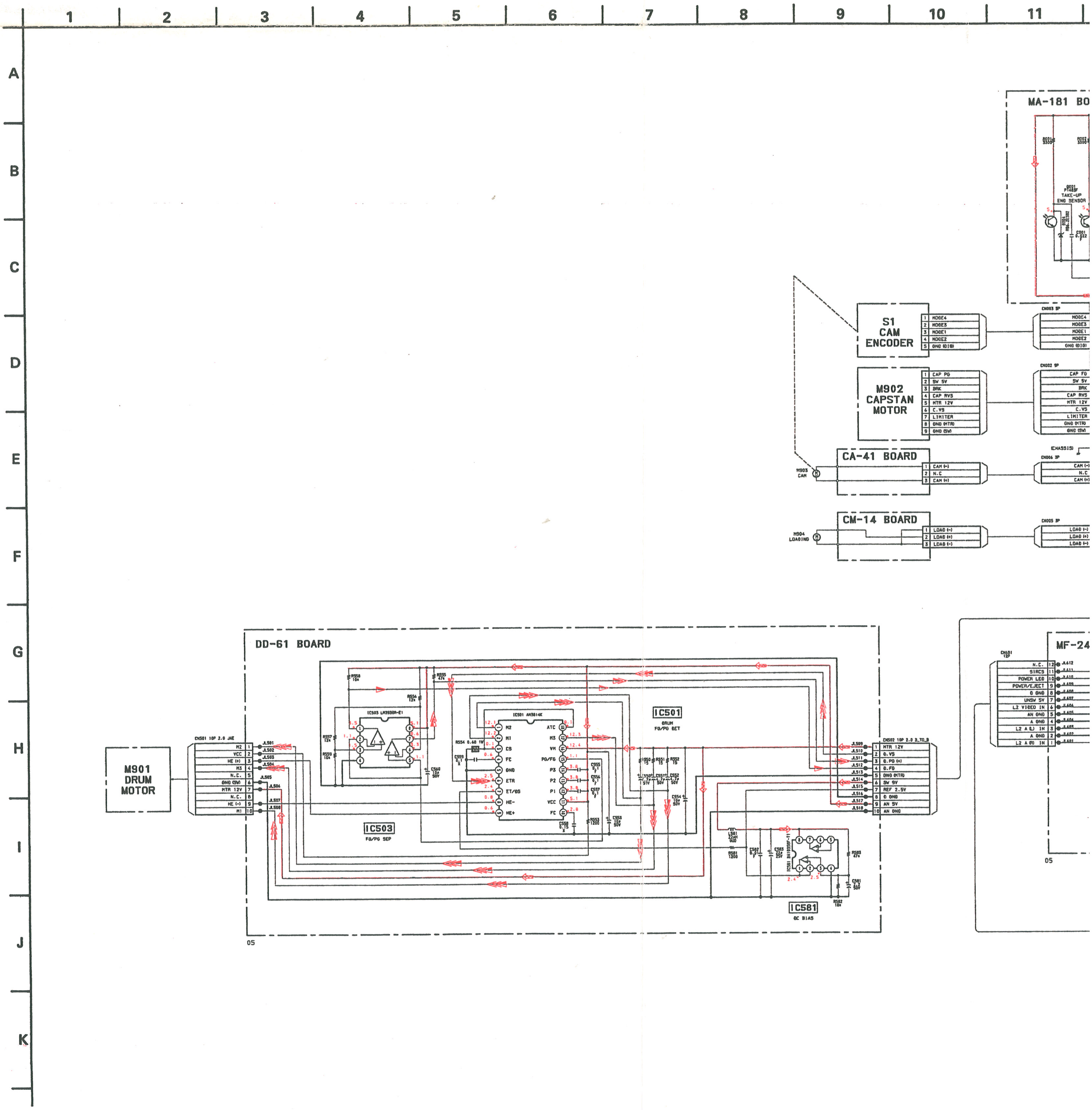


❻ IC203 ㊳ REC/PB



❽ IC203 ⑦ REC/PB





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A
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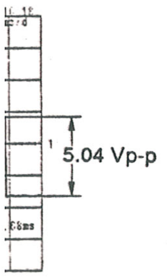
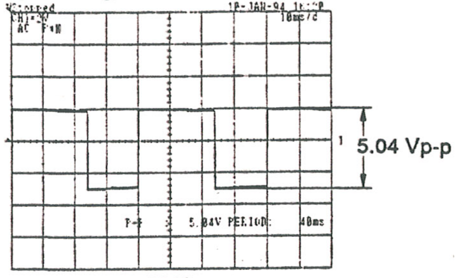
K
MA-181 BO
R001 3300
R002 3300
Q001 PT483F TAKE-UP END SENSOR
D004 RD6.2ESB2
C001 0.022 F
S1 CAM ENCODER
MODE4
MODE3
MODE1
MODE2
GND (DIG)
CN003 5P
M902 CAPSTAN MOTOR
CAP PG
SW 5V
BRK
CAP RVS
MTR 12V
C.VS
LIMITER
GND (MTR)
GND (SW)
CN002 9P
CAP FG
(CHASSIS)
CA-41 BOARD
M903 CAM
CAM (-)
N.C
CAM (+)
CN006 3P
CM-14 BOARD
M904 LOADING
LOAD (-)
LOAD (+)
CN005 3P
DD-61 BOARD
M901 DRUM MOTOR
CN501 10P 2.0 JAE
M2
VCC
HE (+)
M3
N.C.
GND (SW)
MTR 12V
HE (-)
M1
JL501
JL502
JL503
JL504
JL505
JL506
JL507
JL508
IC503 LM3930R-E1
R558 10k
R555 47k
R556 12k
R557 12k
R559 10k
C560 10μ 50V
IC503
FG/PG SEP
IC501 AN3814K
M1
CS
FC
GND
ETR
ET/DS
HE-
HE+
ATC
VM
PG/FG
P3
P2
P1
R554 0.68 1W
C559 0.1
C555 0.1
C556 0.1
C557 0.1
C558 0.15
R553 1200
C553 10μ 50V
IC501
DRUM FG/PG DET
R550 15
R551 15
R552 15
C550 4.7μ 50V
C551 4.7μ 50V
C552 4.7μ 50V
C554 10μ 50V
L581 22μH
R581 1200
C582 0.01
C583 22μ 25V
IC581 BA10358F-T1
R583 47k
C581 2.2 50V
R582 18k
IC581
DC BIAS
CN502 10P 2.0 B_TO_B
JL509
JL510
JL511
JL512
JL513
JL514
JL515
JL516
JL517
JL518
D.VS
D.PG (+)
D.FG
SW 9V
REF 2.5V
D GND
AN 5V
AN GND
05
MF-24
CN601 12P
N.C.
SIRCS
POWER LED
POWER/EJECT
UNSW 5V
L2 VIDEO IN
A GND
L2 A (L) IN
L2 A (R) IN
JL601
JL612
05

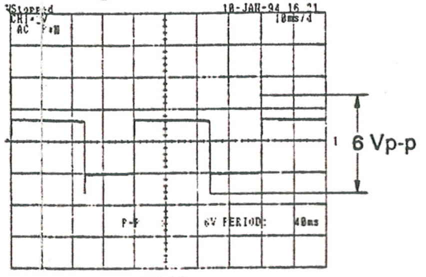


⑨IC203 ⑰ REC/PB



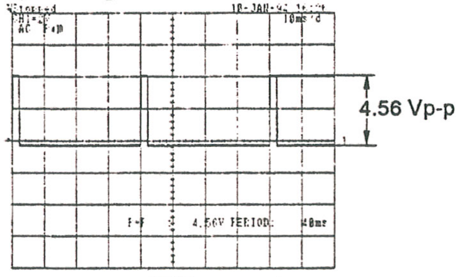
25 Hz

⑪IC101 ⑦ REC



25 Hz

⑬IC101 ㉑ REC/PB

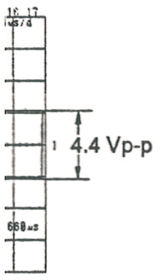


25 Hz

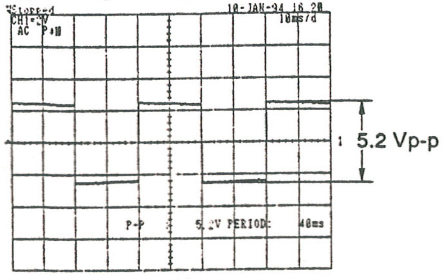
No mark : COMMON (REC)
(  ) : PB
＊ : Impossible to measure the voltage at th

● Signal path

| | VIDEO SIGNAL | | |
|---|---|---|---|
| | CHROMA | Y | Y/CHR |
| REC | ➡ | ➡➡ | ➡ |
| PB | ⇨ | ⇨⇨ | ⇨ |

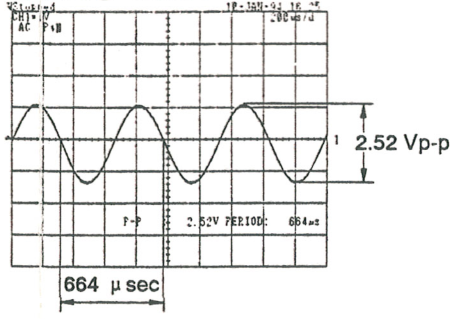


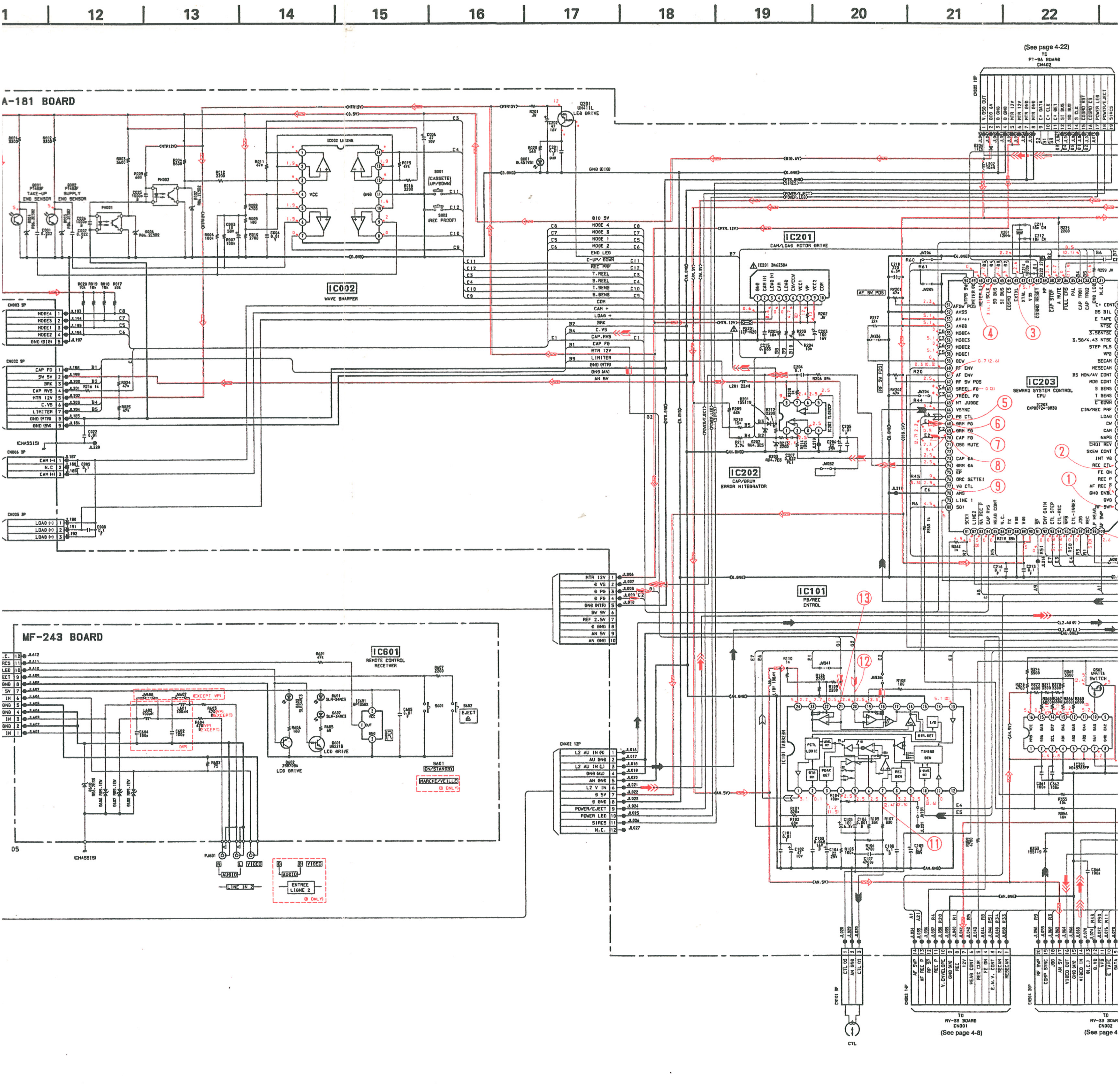
⑩IC203 ⑩ REC/PB



25 Hz

⑫IC101 ⑳ REC/PB




11
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22
A-181 BOARD
IC002
WAVE SHAPER
IC201
CAM/LOAD MOTOR DRIVE
IC202
CAP/DRUM
ERROR INTEGRATOR
IC203
SERVO/SYSTEM CONTROL
CPU
IC101
PB/REC
CONTROL
MF-243 BOARD
IC601
REMOTE CONTROL
RECEIVER
(See page 4-22)
TO
PT-96 BOARD
CN402
TO
RV-33 BOARD
CN001
(See page 4-8)
TO
RV-33 BOARD
CN002
(See page 4
CTL
(CHASSIS)
LINE IN 2
ENTREE LIGNE 2
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑪ ⑫ ⑬

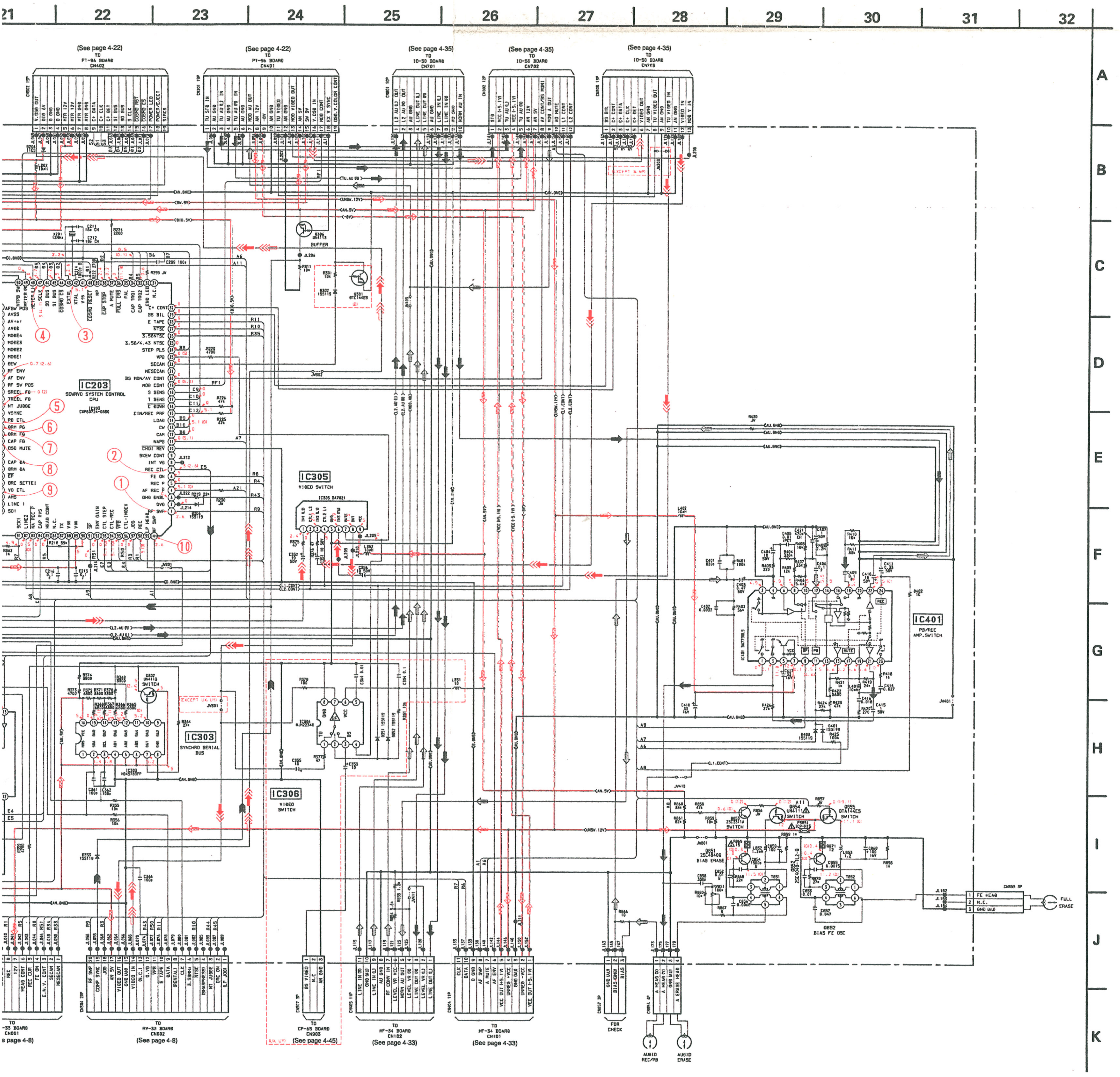
COMMON (REC)
PB
Impossible to measure the voltage at the marked points.

l path

| VIDEO SIGNAL | | | AUDIO SIGNAL |
|---|---|---|---|
| CHROMA | Y | Y/CHROMA | |
| ➡ | ➡▶ | ➡▶▶ | ➡ |
| ⇨ | ⇨▷ | ⇨▷▷ | ⇨ |

- Signal path

| | REC | REC/PB | PB |
|---|---|---|---|
| Drum speed servo | | ▷ | |
| Drum phase servo | | ▷▷ | |
| Drum servo (speed and phase) | | ▷▷▷ | |
| Capstan speed servo | | ▻ | |
| Capstan phase servo | ►► | ▻▻ | ▻▻ |
| Capstan servo (speed and phase) | | ▻▻▻ | |
| Ref. signal | ► | | ▻ |


21
22
23
24
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26
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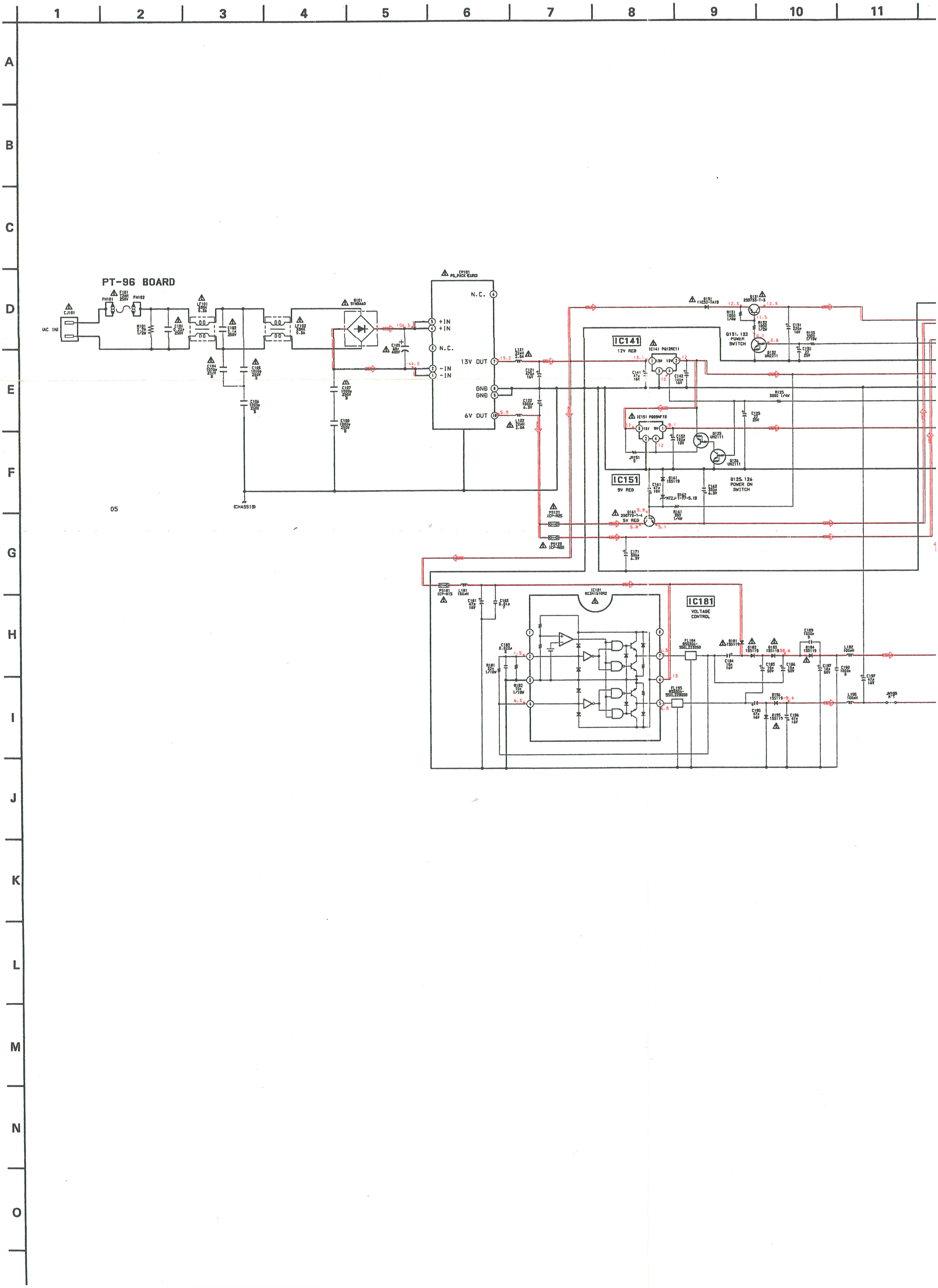
30
31
32
A
B
C
D
E
F
G
H
I
J
K
(See page 4-22) TO PT-96 BOARD CN402
(See page 4-22) TO PT-96 BOARD CN401
(See page 4-35) TO IO-50 BOARD CN701
(See page 4-35) TO IO-50 BOARD CN702
(See page 4-35) TO IO-50 BOARD CN703
IC203 SERVO SYSTEM CONTROL CPU
Q306 BUFFER
IC305 VIDEO SWITCH
IC303 SYNCHRO SERIAL BUS
IC306 VIDEO SWITCH
Q502 SWITCH
IC401 PB/REC AMP. SWITCH
Q851 BIAS ERASE SWITCH
Q852 BIAS FE OSC
Q854 SWITCH
Q855 SWITCH
FE HEAD
N.C.
GND (AU)
FULL ERASE
TO -33 BOARD CN001 (See page 4-8)
TO RY-33 BOARD CN002 (See page 4-8)
TO CP-65 BOARD CN903 (See page 4-45)
TO HF-34 BOARD CN102 (See page 4-33)
TO HF-34 BOARD CN101 (See page 4-33)
FOR CHECK
AUDIO REC/PB
AUDIO ERASE

## SERVO, SYSTEM CONTROL

# PT-96 (TUNER, TIMER, MODE CONTROL) SCHEMATIC DIAGRAM

– Ref. No.: PT-96 Board; 3,000 series –


1
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A
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D
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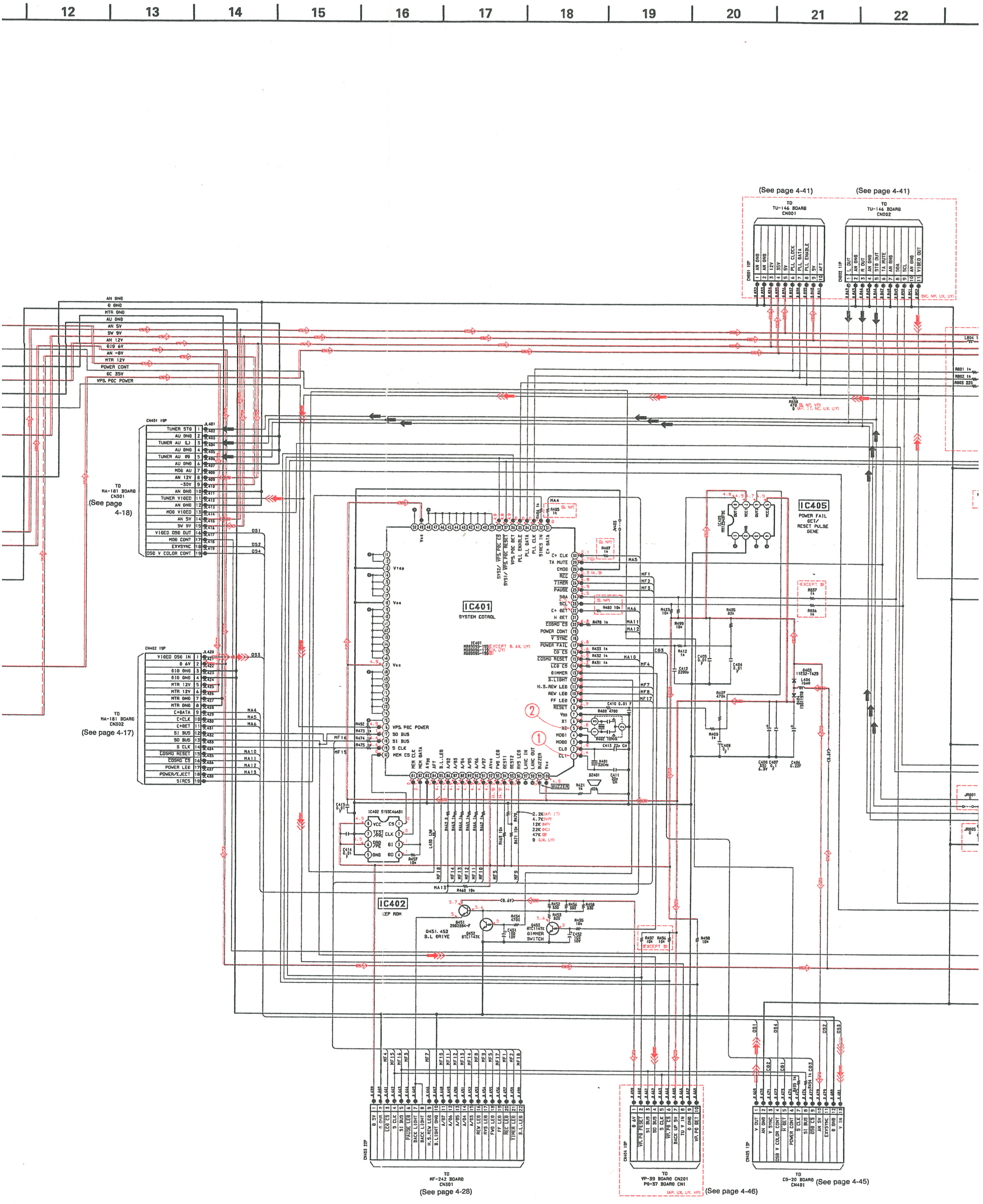
F
G
H
I
J
K
L
M
N
O
PT-96 BOARD
CJ101
(AC IN)
FH101
F101
T2AH
250V
FH102
R101
2.7M
1/2W
C101
0.22µ
250V
LF101
33MH
0.3A
C102
0.1µ
250V
LF102
33MH
0.3A
C104
1000p
250V
B
C105
1000p
250V
B
C106
1000p
250V
B
(CHASSIS)
05
D101
S1WBA60
C103
68µ
400V
106.3
-44.3
C107
1000p
250V
B
C108
1000p
250V
B
CP101
PS_PACK (EURO)
N.C.
+IN
+IN
N.C.
-IN
-IN
13V OUT
GND
GND
6V OUT
L121
22µH
2.0A
13.2
C121
470µ
16V
C122
1000µ
6.3V
L122
22µH
2.0A
5.9
D131
11ES2-TA1B
Q131
2SB733-T-3
12.3
12.3
R131
1000
1/4W
11.5
R132
1000
1/2W
0.1
3.8
Q131, 132
POWER
SWITCH
Q132
UN2211
C131
220µ
16V
R133
3300
1/10W
C132
22
25V
IC141
12V REG
IC141 PQ12RE11
13.1
13V
12V
12
12
C141
47µ
16V
C142
100µ
16V
R125
3300 1/4W
C125
22
25V
IC151 PQ09NF19
12
12V
9V
9.1
12
C152
100µ
10V
Q125
UN2111
Q126
UN2111
JR151
0
IC151
9V REG
D161
1SS119
C161
47µ
10V
D162
MTZJ-T-77-5.1B
C162
330µ
6.3V
Q125, 126
POWER ON
SWITCH
PS121
ICP-N25
Q161
2SD773-T-4
5V REG
5.9
5.8
5.1
R161
390
1/4W
PS123
ICP-N38
C171
330µ
6.3V
PS181
ICP-N15
L181
100µH
C181
47µ
16V
C182
0.01µ
F
IC181
MC34151DR2
IC181
VOLTAGE
CONTROL
C183
0.022µ
B
1.5
R181
22k
1/10W
R182
10k
1/10W
6.3
6.3
13
5.8
FL184
BSS306-
SSGL223SSO
FL195
BSS306-
SSGL223SSO
D181
1SS119
C184
10µ
16V
D182
1SS119
D183
1SS119
38.6
C185
10µ
50V
C186
10µ
50V
C189
1000p
B
D184
1SS119
C187
10µ
50V
C190
1000p
B
L182
100µH
C197
47µ
16V
D196
1SS119
-9.4
C195
47µ
16V
D195
1SS119
C196
47µ
16V
L195
100µH
JW195
H'T


12
13
14
15
16
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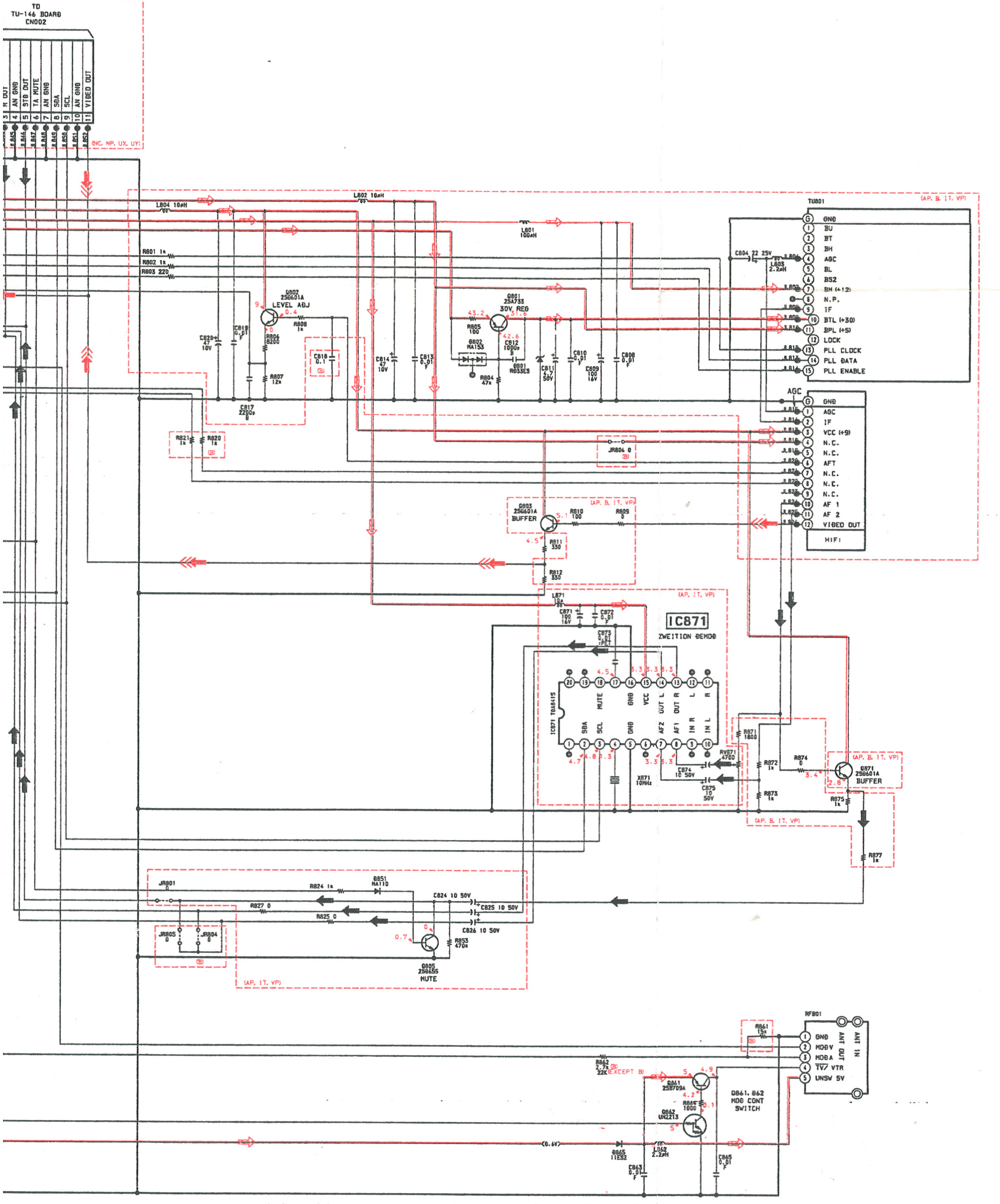
18
19
20
21
22
(See page 4-41)
TO
TU-146 BOARD
CN001
(See page 4-41)
TO
TU-146 BOARD
CN002
CN001 10P
AN GND
AN GND
12V
35V
5V
PLL CLOCK
PLL DATA
PLL ENABLE
9V
AFT
CN002 11P
L OUT
AN GND
R OUT
AN GND
STB OUT
TA MUTE
AN GND
SDA
SCL
AN GND
VIDEO OUT
(NC, NP, UX, UY)
AN GND
D GND
MTR GND
AU GND
AN 5V
SW 9V
AN 12V
DIG 6V
AN -8V
MTR 12V
POWER CONT
DC 35V
VPS. PDC POWER
CN401 19P
TUNER STD
AU GND
TUNER AU (L)
AU GND
TUNER AU (R)
AU GND
MOD AU
AN 12V
-30V
AN GND
TUNER VIDEO
AN GND
MOD VIDEO
AN 5V
SW 9V
VIDEO OSD OUT
MOD CONT
EXVSYNC
OSD V COLOR CONT
TO
MA-181 BOARD
CN301
(See page 4-18)
CN402 19P
VIDEO OSD IN
D 6V
DIG GND
DIG GND
MTR 12V
MTR 12V
MTR GND
MTR GND
C+DATA
C+CLK
C+DET
SI BUS
SO BUS
S CLK
COSMO RESET
COSMO CS
POWER LED
POWER/EJECT
SIRCS
TO
MA-181 BOARD
CN302
(See page 4-17)
IC401
SYSTEM COTROL
IC401
MB89695-155 (EXCEPT B, AX, UY)
MB89695-118 (B, UY)
MB89695-155 (AX)
VPS. PDC POWER
SO BUS
SI BUS
S CLK
MEM CS
C+ CLK
TA MUTE
CMOD
REC
TIMER
PAUSE
SDA
SCL
C+ DET
H DET
COSMO CS
POWER CONT
V SYNC
POWER FAIL
CG CS
COSMO RESET
LCD CS
DIMMER
B.LIGHT
H.S.REW LED
REW LED
FF LED
RESET
Vss
X1
XO
MOD1
MOD0
CLO
CL1
Vcc
Vref
SYS2/ VPS. PDC RESET
SYS1/ VPS. PDC CS
VPS. PDC DET
PLL ENABLE
PLL DATA
PLL CLK
SIRCS IN
C+ DATA
MEM CLK
MEM DATA
A Vss
AFT
B.L LED
A/D1
A/D2
A/D3
A/D4
A/D5
A/D6
A/D7
A Vcc
FWD LED
REST1
REST2
RVS LED
LANC IN
LANC OUT
BUZZER
BUZZER
BZ401
X401 32KHz
X402 10MHz
IC402 S93C46AB1
VCC
CS
TEST /PRE
CLK
ORG /PE
DI
GND
DO
IC402
EEP ROM
Q451, 452
2SB1394-F
B.L DRIVE
Q453
DTC114TK
DIMMER SWITCH
(EXCEPT B)
IC405
POWER FAIL
DET/
RESET PULSE
GENE
IC405 MM1254EFBE
(EXCEPT B)
CN403 22P
D 5V
D GND
LCD CS
S CLK
SI BUS
SO BUS
PAUSE LED
BACK LIGHT
BACK LIGHT
H.S.REW LED
B.LIGHT GND
A/D7
A/D6
A/D5
A/D4
A/D3
REW LED
RVS LED
FWD LED
FF LED
REC LED
TIMER LED
B.L LED
TO
MF-242 BOARD
CN501
(See page 4-28)
CN404 10P
VP, PB RESET
D 6V
SI BUS
SO BUS
S CLK
VP, PB CS
BACK UP 5V
TU V IN
D GND
VP, PB DET
TO
VP-39 BOARD CN201
PD-57 BOARD CN1
(AP, UX, UY, VP)
(See page 4-46)
CN405 13P
V OUT
AN GND
V SYNC
OSD V COLOR CONT
H DET
POWER CONT
S CLK
SI BUS
OSD CS
AN 5V
EXVSYNC
D GND
V IN
TO
CG-20 BOARD
CN401
(See page 4-45)

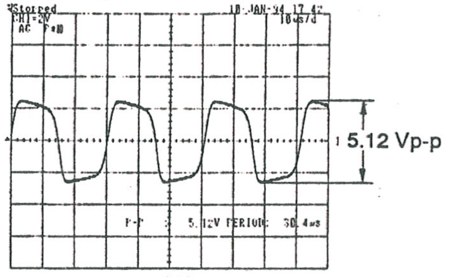
ee page 4-41)


22
23
24
25
26
27
28
29
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
TO
TU-146 BOARD
CN002
R OUT
AN GND
STB OUT
TA MUTE
AN GND
SDA
SCL
AN GND
VIDEO OUT
(NC, NP, UX, UY)
L804 10μH
L802 10μH
L801 100μH
R801 1k
R802 1k
R803 220
Q802 2SD601A LEVEL ADJ
R808 1k
R806 8200
R807 12k
C817 2200p B
C818 0.1
C814 47 10V
C813 0.01 F
Q801 2SA733 30V REG
R805 100
D802 MA153
C812 1000p
D801 RD33ES
R804 47k
C811 1 50V
C810 0.01 F
C809 100 16V
C808 0.01 F
R821 1k
R820 1k
JR806 0
TU801
(AP, B, IT, VP)
C804 22 25V
L803 2.2μH
GND
BU
BT
BH
AGC
BL
BS2
BH (+12)
N.P.
IF
BTL (+30)
BPL (+5)
LOCK
PLL CLOCK
PLL DATA
PLL ENABLE
AGC
GND
AGC
IF
VCC (+9)
N.C.
N.C.
AFT
N.C.
N.C.
N.C.
AF 1
AF 2
VIDEO OUT
HIFI
Q803 2SD601A BUFFER
R810 100
R809 0
R811 330
R812 330
L871 10μH
C871 100 16V
C872 0.01 F
C873 0.01 PET
IC871
ZWEITION DEMOD
IC871 TDA8415
SDA
SCL
MUTE
GND
GND
VCC
AF2
AF1
OUT L
OUT R
IN R
IN L
L
R
X871 10MHz
RV871 4700
C874 10 50V
C875 10 50V
R871 1800
R872 1k
R873 1k
R874 0
Q871 2SD601A BUFFER
R875 1k
R877 1k
JR801
R824 1k
D851 MA110
C824 10 50V
C825 10 50V
C826 10 50V
R827 0
R825 0
R853 470k
JR805 0
JR804 0
Q805 2SA655 MUTE
(AP, IT, VP)
RF801
GND
MOD V
MOD A
TV/ VTR
UNSW 5V
ANT OUT
ANT IN
R841 15k
R862 22k
Q841 2SB709A
R845 1000
Q862 UN2213
Q841, 862 MOD CONT SWITCH
D865 11ES2
C863 0.01 F
L862 2.2μH
C865 0.01 F

45)

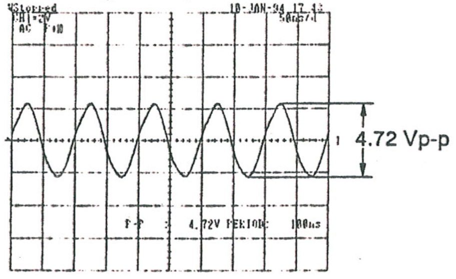
## PT-96 BOARD

❶IC401 ① REC/PB 32kHz



32 kHz

❷IC401 ⑤ REC/PB 10MHz



10 MHz

No mark : COMMON (REC)
( ) : PB
* : Impossible to measure the voltage at the marked points.

- Signal path

| | VIDEO SIGNAL | | | AUDI<br>SIGNA |
|---|---|---|---|---|
| | CHROMA | Y | Y/CHROMA | |
| REC | ➡ | ➡» | ➡⋙ | ➡ |
| PB | ⇨ | ⇨» | ⇨⋙ | ⇨ |

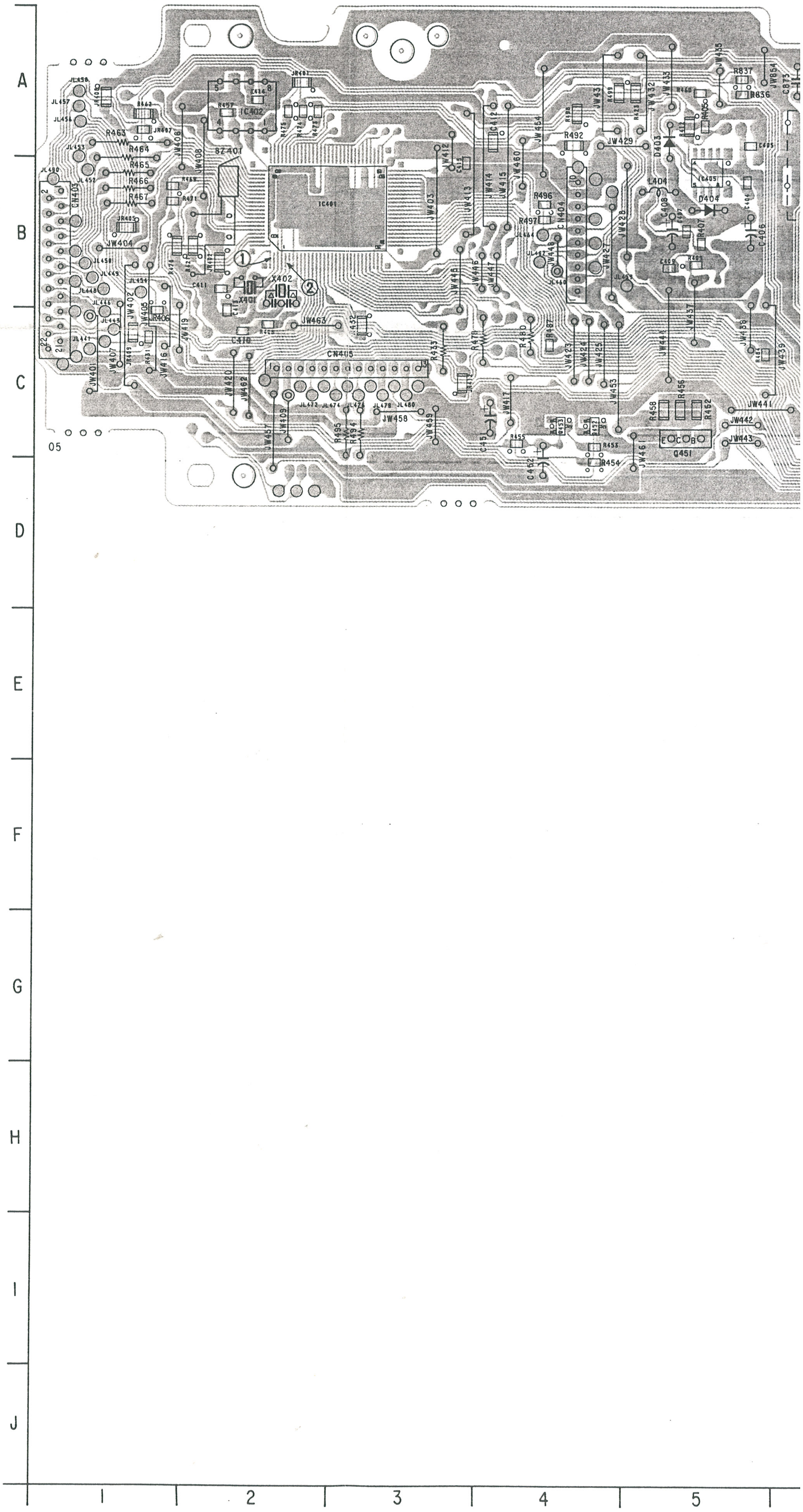
**Note:** The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

## PT-96 (TUNER, TIMER, MODE CONTROL) PRINTED WIRING BOARD

– Ref. No.: PT-96 Board; 3,000 series –

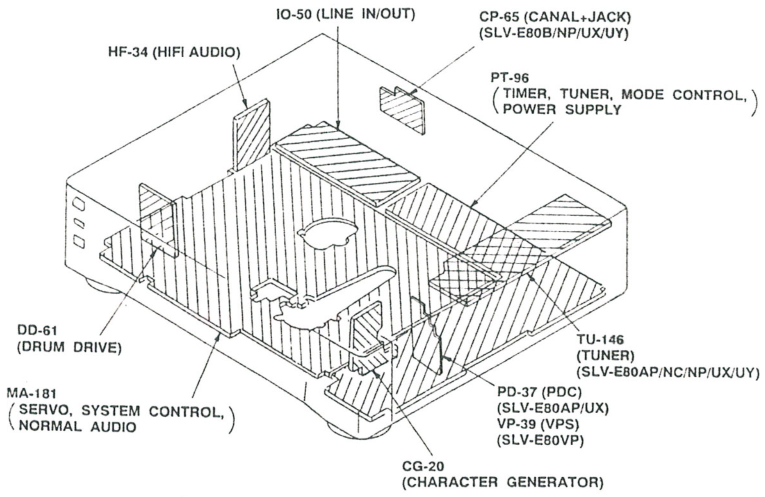
- There is no indication for destination in the printed wiring board diagram.

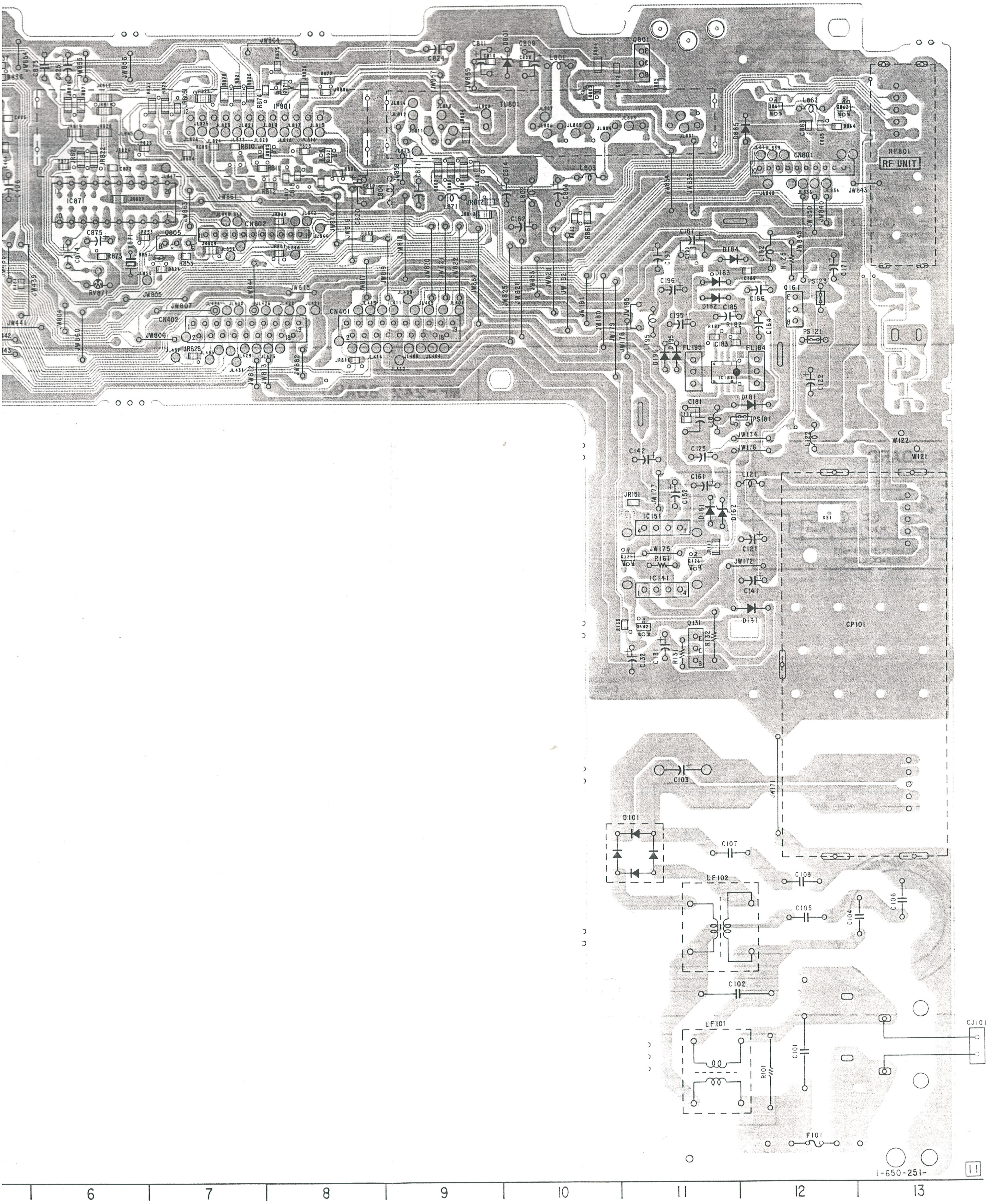
**PT-96** BOARD


A
B
C
D
E
F
G
H
I
J
1
2
3
4
5
IC401
IC402
CN403
CN404
CN405
X402
BZ401
Q451
D403
D404
L404
IC405
R837
R836
JW441
JW442
JW443
05

PT-96 BOARD

| | |
|---|---|
| CN401 | C-8 |
| CN402 | C-7 |
| CN403 | B-1 |
| CN404 | B-4 |
| CN405 | C-2 |
| CN801 | B-12 |
| CN802 | B-7 |
| D101 | G-11 |
| D131 | F-12 |
| D161 | E-11 |
| D162 | E-11 |
| D181 | D-11 |
| D182 | C-11 |
| D183 | C-11 |
| D184 | C-11 |
| D195 | C-11 |
| D196 | C-11 |
| D403 | A-5 |
| D404 | B-5 |
| D801 | A-10 |
| D802 | A-10 |
| D851 | C-6 |
| D865 | A-12 |
| IC141 | E-11 |
| IC151 | E-11 |
| IC181 | D-11 |
| IC401 | B-2 |
| IC402 | A-2 |
| IC405 | B-5 |
| IC871 | B-6 |
| Q125 | E-10 |
| Q126 | E-11 |
| Q131 | F-11 |
| Q132 | F-11 |
| Q161 | C-12 |
| Q451 | C-5 |
| Q452 | C-4 |
| Q453 | C-4 |
| Q801 | A-11 |
| Q802 | B-8 |
| Q803 | B-8 |
| Q805 | B-7 |
| Q861 | A-12 |
| Q862 | A-12 |
| Q871 | A-8 |


IO-50 (LINE IN/OUT)
CP-65 (CANAL+JACK) (SLV-E80B/NP/UX/UY)
HF-34 (HIFI AUDIO)
PT-96 (TIMER, TUNER, MODE CONTROL, POWER SUPPLY)
DD-61 (DRUM DRIVE)
MA-181 (SERVO, SYSTEM CONTROL, NORMAL AUDIO)
TU-146 (TUNER) (SLV-E80AP/NC/NP/UX/UY)
PD-37 (PDC) (SLV-E80AP/UX)
VP-39 (VPS) (SLV-E80VP)
CG-20 (CHARACTER GENERATOR)

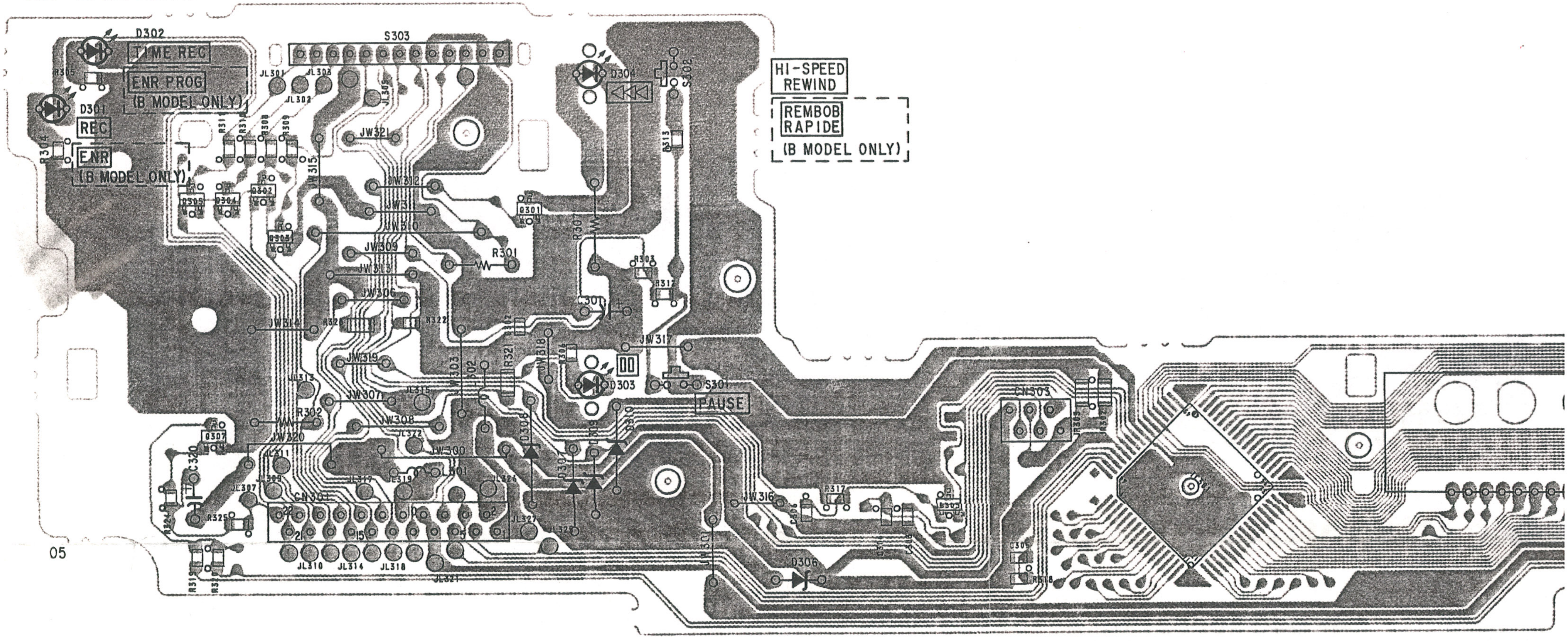

RF UNIT
RF801
TU801
IF801
IC871
IC151
IC141
IC181
CN802
CN801
CN401
CN402
Q801
Q805
Q131
Q161
RV871
FL184
FL195
PS121
PS123
PS181
CP101
D101
LF101
LF102
F101
CJ101
(AC IN)
1-650-251-
11
6
7
8
9
10
11
12
13

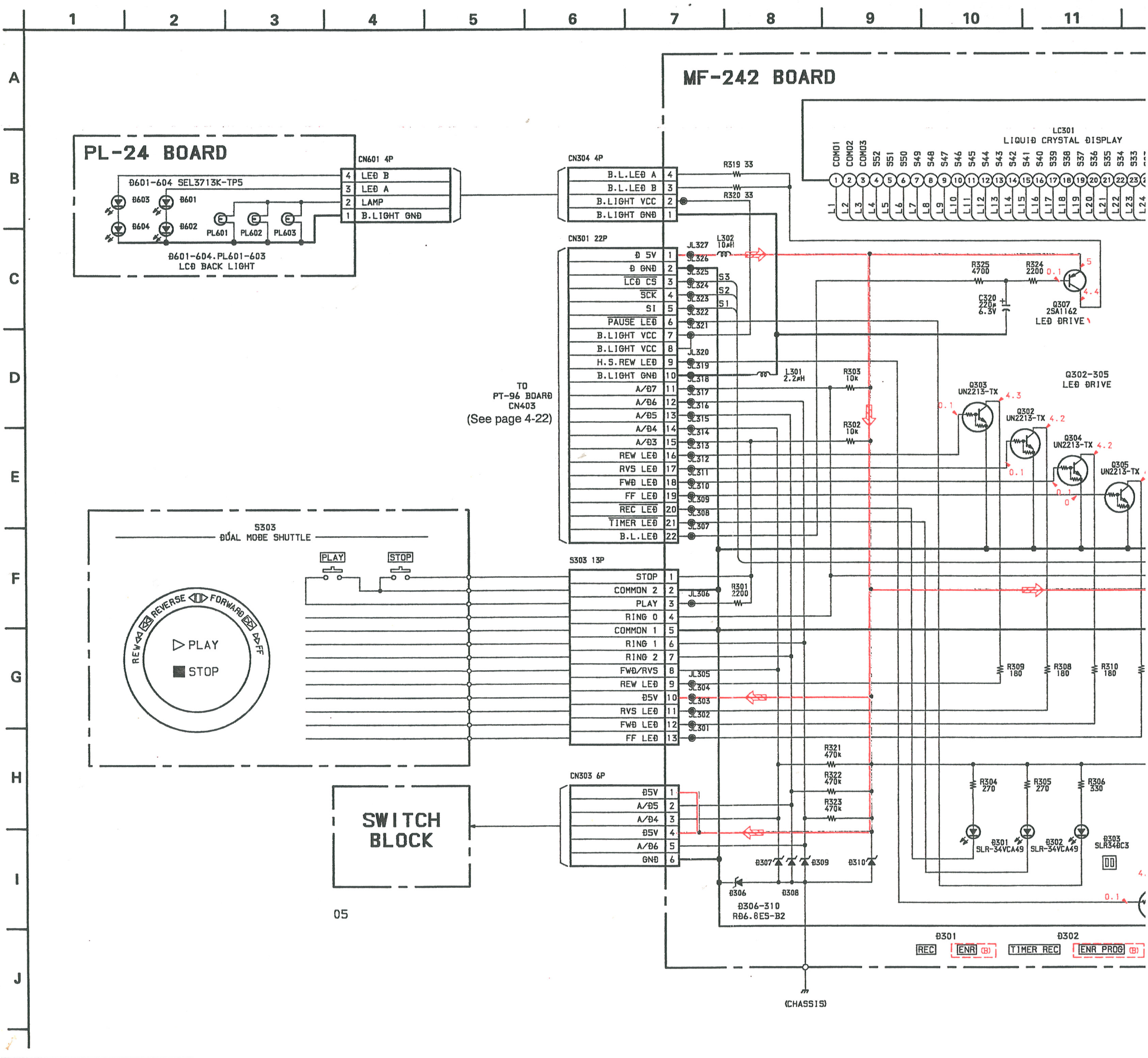
TUNER, MODE CONTRO

## MF-242 (LCD DRIVE), PL-24 (LAMP) PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAM

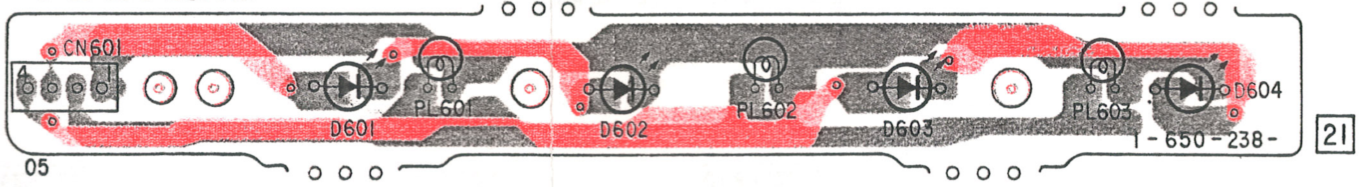
– Ref. No.: MF-242 and PL-24 Boards; 5,000 series –

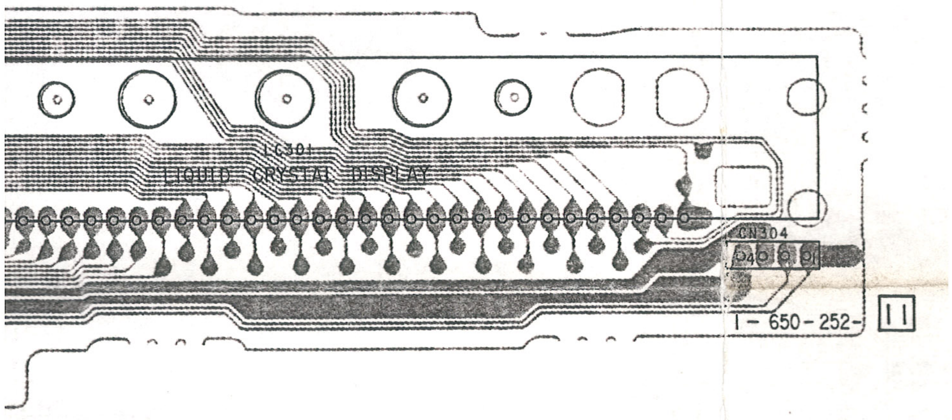
### MF-242 BOARD

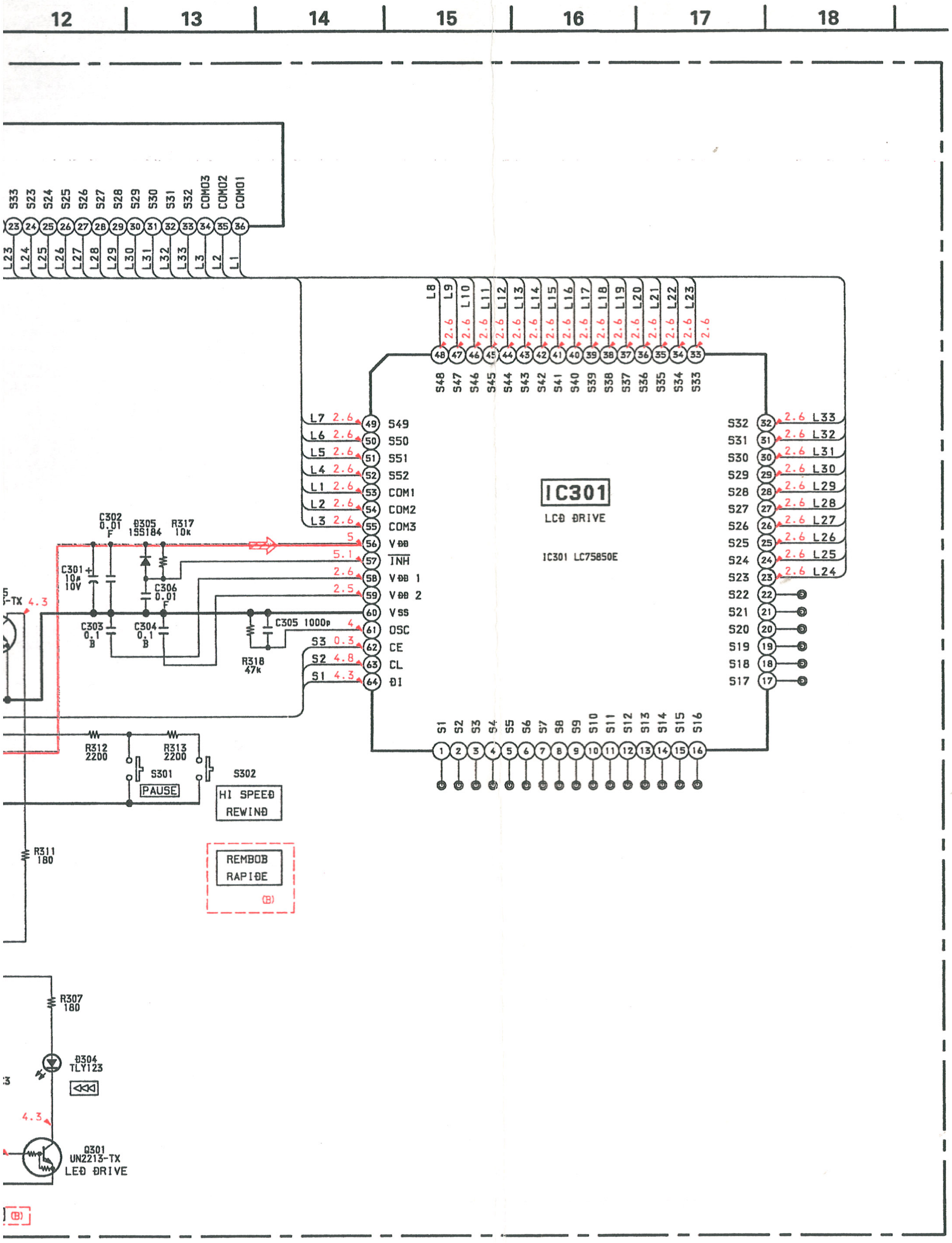

D302
TIME REC
ENR PROG
(B MODEL ONLY)
D301
REC
ENR
(B MODEL ONLY)
S303
D304
S302
HI-SPEED
REWIND
REMBOB
RAPIDE
(B MODEL ONLY)
D303
S301
PAUSE
CN303
CN301
D306
05

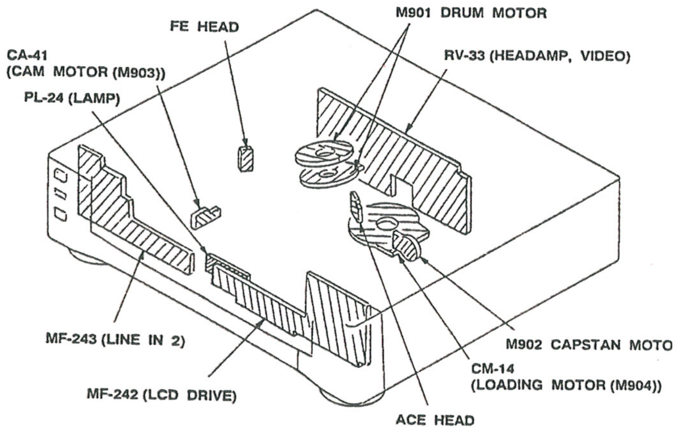

1
2
3
4
5
6
7
8
9
10
11
A
B
C
D
E
F
G
H
I
J
MF-242 BOARD
PL-24 BOARD
D601-604 SEL3713K-TP5
D603
D601
D604
D602
PL601
PL602
PL603
D601-604.PL601-603
LCD BACK LIGHT
CN601 4P
4 LED B
3 LED A
2 LAMP
1 B.LIGHT GND
CN304 4P
B.L.LED A 4
B.L.LED B 3
B.LIGHT VCC 2
B.LIGHT GND 1
R319 33
R320 33
CN301 22P
D 5V 1
D GND 2
LCD CS 3
SCK 4
SI 5
PAUSE LED 6
B.LIGHT VCC 7
B.LIGHT VCC 8
H.S.REW LED 9
B.LIGHT GND 10
A/D7 11
A/D6 12
A/D5 13
A/D4 14
A/D3 15
REW LED 16
RVS LED 17
FWD LED 18
FF LED 19
REC LED 20
TIMER LED 21
B.L.LED 22
JL327
L302 10µH
S3
S2
S1
L301 2.2µH
TO
PT-96 BOARD
CN403
(See page 4-22)
LC301
LIQUID CRYSTAL DISPLAY
R325 4700
R324 2200
C320 220µ 6.3V
Q307 2SA1162
LED DRIVE
R303 10k
R302 10k
Q302-305
LED DRIVE
Q303 UN2213-TX
Q302 UN2213-TX
Q304 UN2213-TX
Q305 UN2213-TX
S303
DUAL MODE SHUTTLE
PLAY
STOP
REVERSE
FORWARD
REW
FF
S303 13P
STOP 1
COMMON 2 2
PLAY 3
RING 0 4
COMMON 1 5
RING 1 6
RING 2 7
FWD/RVS 8
REW LED 9
D5V 10
RVS LED 11
FWD LED 12
FF LED 13
R301 2200
JL306
JL305
R309 180
R308 180
R310 180
R321 470k
R322 470k
R323 470k
R304 270
R305 270
R306 330
CN303 6P
D5V 1
A/D5 2
A/D4 3
D5V 4
A/D6 5
GND 6
SWITCH
BLOCK
D307
D309
D310
D306
D308
D306-310
RD6.8ES-B2
D301 SLR-34VCA49
D302 SLR-34VCA49
D303 SLR343BC3
D301
REC
ENR (B)
D302
TIMER REC
ENR PROG (B)
(CHASSIS)
05

## PL-24 BOARD


CN601
D601
PL601
D602
PL602
D603
PL603
D604
1-650-238-
21
05


LC301
LIQUID CRYSTAL DISPLAY
CN304
1-650-252-
11

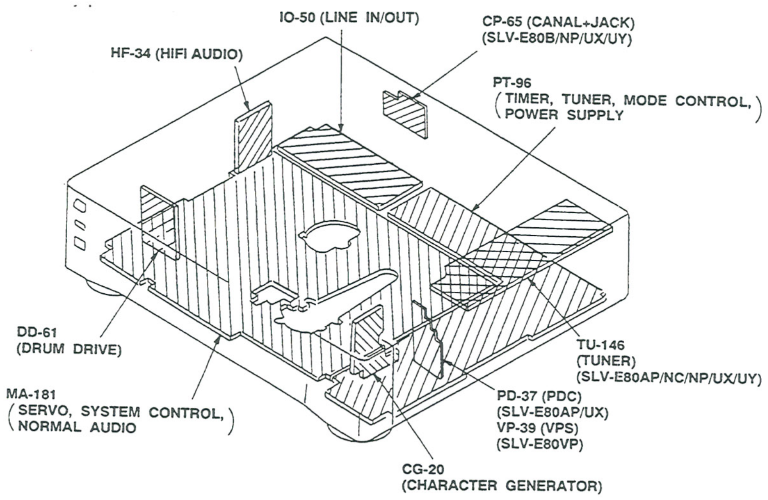

12
13
14
15
16
17
18
IC301
LCD DRIVE
IC301 LC75850E
C302 0.01 F
D305 1SS184
R317 10k
C301 10μ 10V
C306 0.01 F
C303 0.1 B
C304 0.1 B
C305 1000p
R318 47k
R312 2200
R313 2200
S301 PAUSE
S302 HI SPEED REWIND
REMBOB RAPIDE
R311 180
R307 180
D304 TLY123
Q301 UN2213-TX LED DRIVE
VDD
INH
VDD 1
VDD 2
VSS
OSC
CE
CL
DI
COM1
COM2
COM3


FE HEAD
M901 DRUM MOTOR
CA-41 (CAM MOTOR (M903))
RV-33 (HEADAMP, VIDEO)
PL-24 (LAMP)
MF-243 (LINE IN 2)
MF-242 (LCD DRIVE)
M902 CAPSTAN MOTO
CM-14 (LOADING MOTOR (M904))
ACE HEAD

No mark : COMMON (REC)
( ) : PB

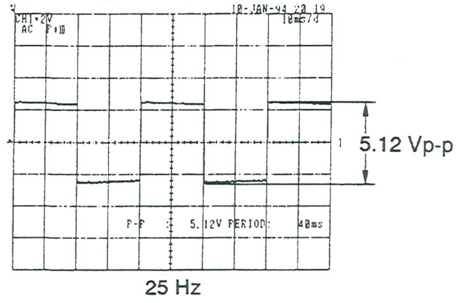
## HF-34 (HiFi AUDIO) PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM

– Ref. No.: HF-34 Board; 6,000 series –

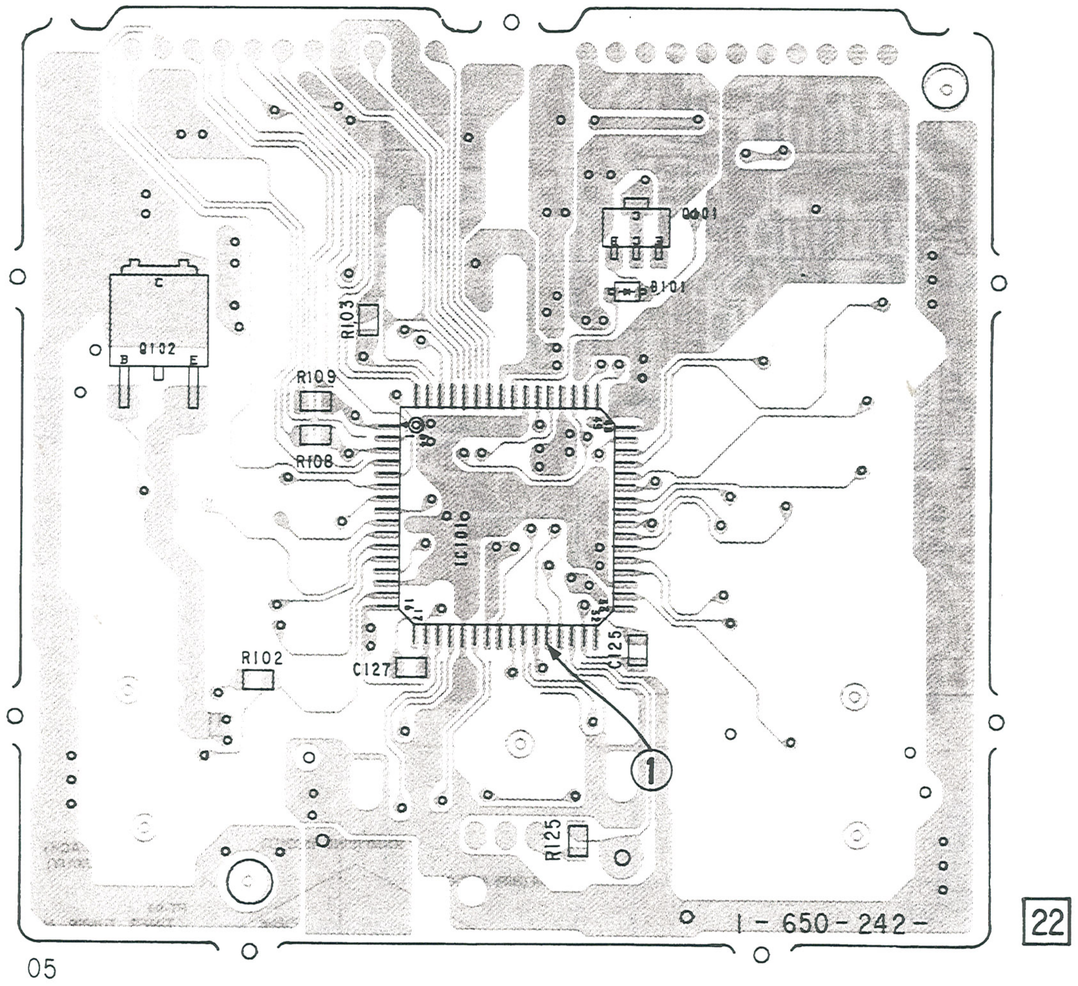

IO-50 (LINE IN/OUT)
CP-65 (CANAL+JACK)
(SLV-E80B/NP/UX/UY)
HF-34 (HIFI AUDIO)
PT-96
(TIMER, TUNER, MODE CONTROL, POWER SUPPLY)
DD-61
(DRUM DRIVE)
MA-181
(SERVO, SYSTEM CONTROL, NORMAL AUDIO)
TU-146
(TUNER)
(SLV-E80AP/NC/NP/UX/UY)
PD-37 (PDC)
(SLV-E80AP/UX)
VP-39 (VPS)
(SLV-E80VP)
CG-20
(CHARACTER GENERATOR)

**HF-34 BOARD**

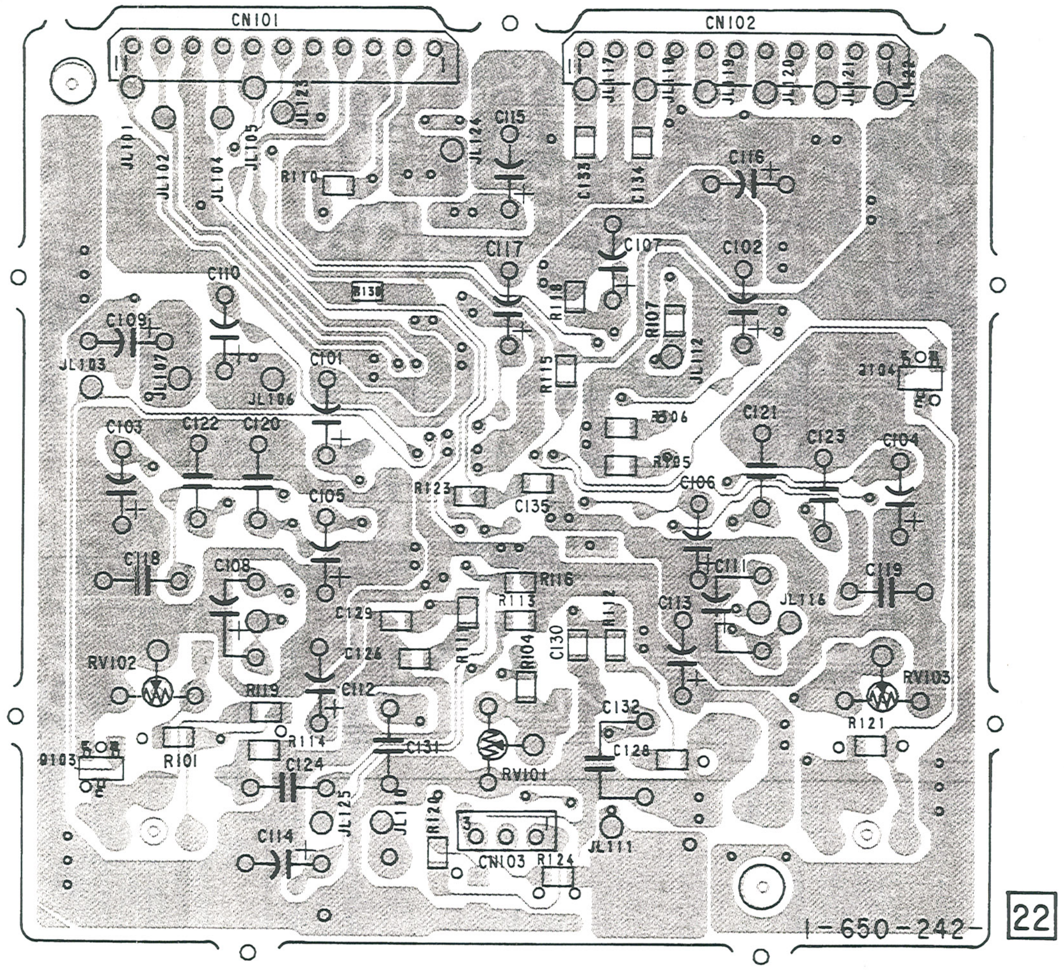
❶IC101 ㉘ REC/PB



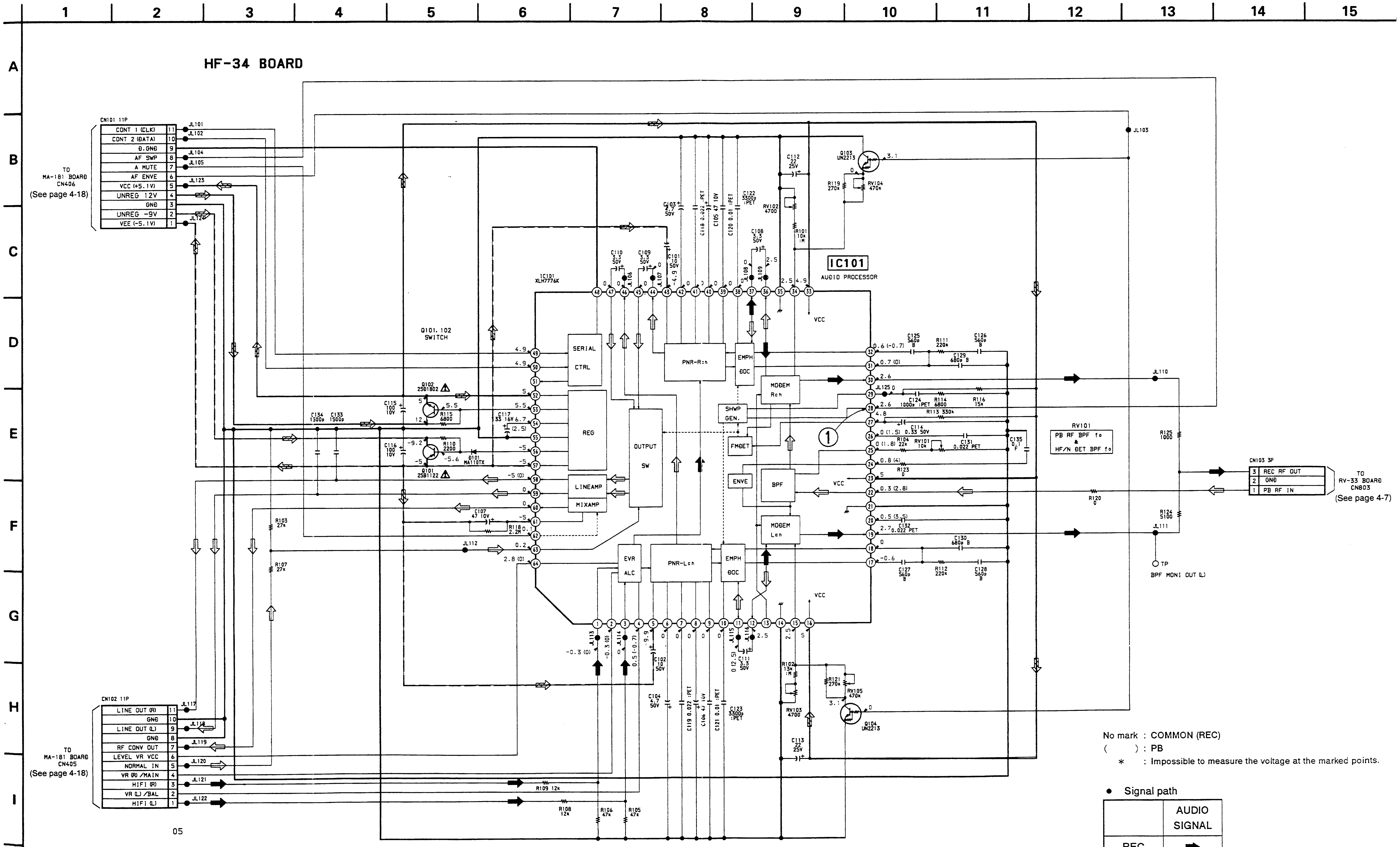
## HF-34 BOARD (COMPONENT SIDE)


Q101
B101
Q102
C
B
E
R103
R109
R108
IC101
R102
C127
C125
R125
①
1-650-242-
22
05

## HF-34 BOARD (CONDUCTOR SIDE)


CN101
CN102
JL101
JL102
JL104
JL105
JL123
JL124
C115
R110
C133
C134
C116
C117
C107
C102
C110
R138
R118
R107
JL112
C109
JL103
JL107
JL106
C101
R115
Q104
R106
C121
C103
C122
C120
C123
C104
R105
R123
C106
C135
C105
C118
C108
C111
R116
R113
C113
JL116
C119
C129
R111
R104
C130
C126
RV102
R119
C112
RV103
R121
C132
Q103
R101
R114
C131
RV101
C128
C124
JL125
JL110
R120
C114
CN103
R124
JL111
1-650-242-
22

## HF-34 BOARD


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
A B C D E F G H I J
CN101 11P
CONT 1 (CLK)
CONT 2 (DATA)
D.GND
AF SWP
A MUTE
AF ENVE
VCC (+5.1V)
UNREG 12V
GND
UNREG -9V
VEE (-5.1V)
TO MA-181 BOARD CN406
(See page 4-18)
JL101
JL102
JL104
JL105
JL123
JL124
JL103
IC101 XLH7776K
IC101
AUDIO PROCESSOR
Q101, 102 SWITCH
Q102 2SD1802
Q101 2SB1122
D101 MA110TX
C115 100 10V
C116 100 10V
C134 1500p
C133 1500p
C117 33 16V
R115 6800
R110 2200
C107 47 10V
R118 2.2M
R103 27k
R107 27k
JL112
SERIAL CTRL
REG
OUTPUT SW
LINEAMP
MIXAMP
PNR-Rch
PNR-Lch
EMPH DOC
MODEM Rch
MODEM Lch
SHWP GEN.
FMDET
ENVE
BPF
EVR ALC
VCC
C103 2.2 50V
C118 0.022 :PET
C105 47 10V
C120 0.01 :PET
C122 3300p :PET
C110 3.3 50V
C109 3.3 50V
C101 10 50V
C108 3.3 50V
C112 22 25V
RV102 4700
R101 10k :M
Q103 UN2213
R119 270k
RV104 470k
C125 560p B
R111 220k
C126 560p B
C129 680p B
C124 1000p :PET
R114 6800
R116 15k
R113 330k
C114 0.33 50V
R104 22k
RV101 10k
C131 0.022 PET
C135 0.1 F
R123 0
C132 0.022 PET
C130 680p B
C127 560p
R112 220k
C128 560p B
RV101
PB RF BPF fo & HF/N DET BPF fo
R125 1000
R120 0
R124 5100
JL110
JL111
TP BPF MONI OUT (L)
CN103 3P
REC RF OUT
GND
PB RF IN
TO RV-33 BOARD CN803
(See page 4-7)
JL113
JL114
JL115
JL116
C102 10 50V
C111 3.3 50V
C104 4.7 50V
C119 0.022 :PET
C106 47 10V
C121 0.01 :PET
C123 3300p :PET
R102 15k :M
R121 270k
RV105 470k
RV103 4700
C113 22 25V
Q104 UN2213
CN102 11P
LINE OUT (R)
GND
LINE OUT (L)
GND
RF CONV OUT
LEVEL VR VCC
NORMAL IN
VR (R) /MAIN
HIFI (R)
VR (L) /BAL
HIFI (L)
TO MA-181 BOARD CN405
(See page 4-18)
JL117
JL118
JL119
JL120
JL121
JL122
R109 12k
R108 12k
R106 47k
R105 47k
05
①

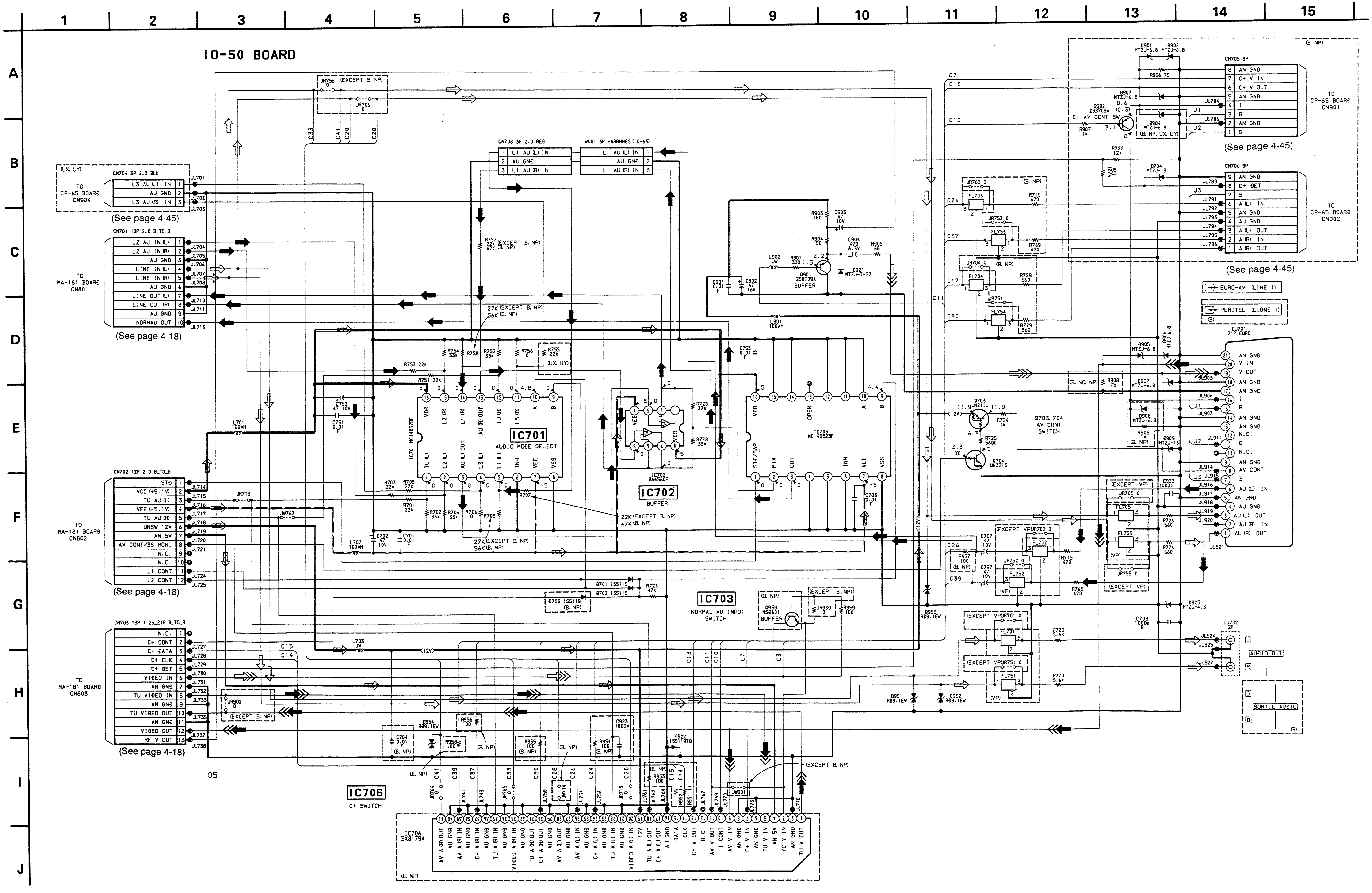
No mark : COMMON (REC)
(  ) : PB
∗ : Impossible to measure the voltage at the marked points.

- Signal path

| | AUDIO SIGNAL |
|---|---|
| REC | ➡ |
| PB | ⇨ |

## SLV-E80AP/B/IT/NC/NP/UX/UY/VP IO-50 (LINE IN/OUT) PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM

– Ref. No.: IO-50 Board; 4,000 series –

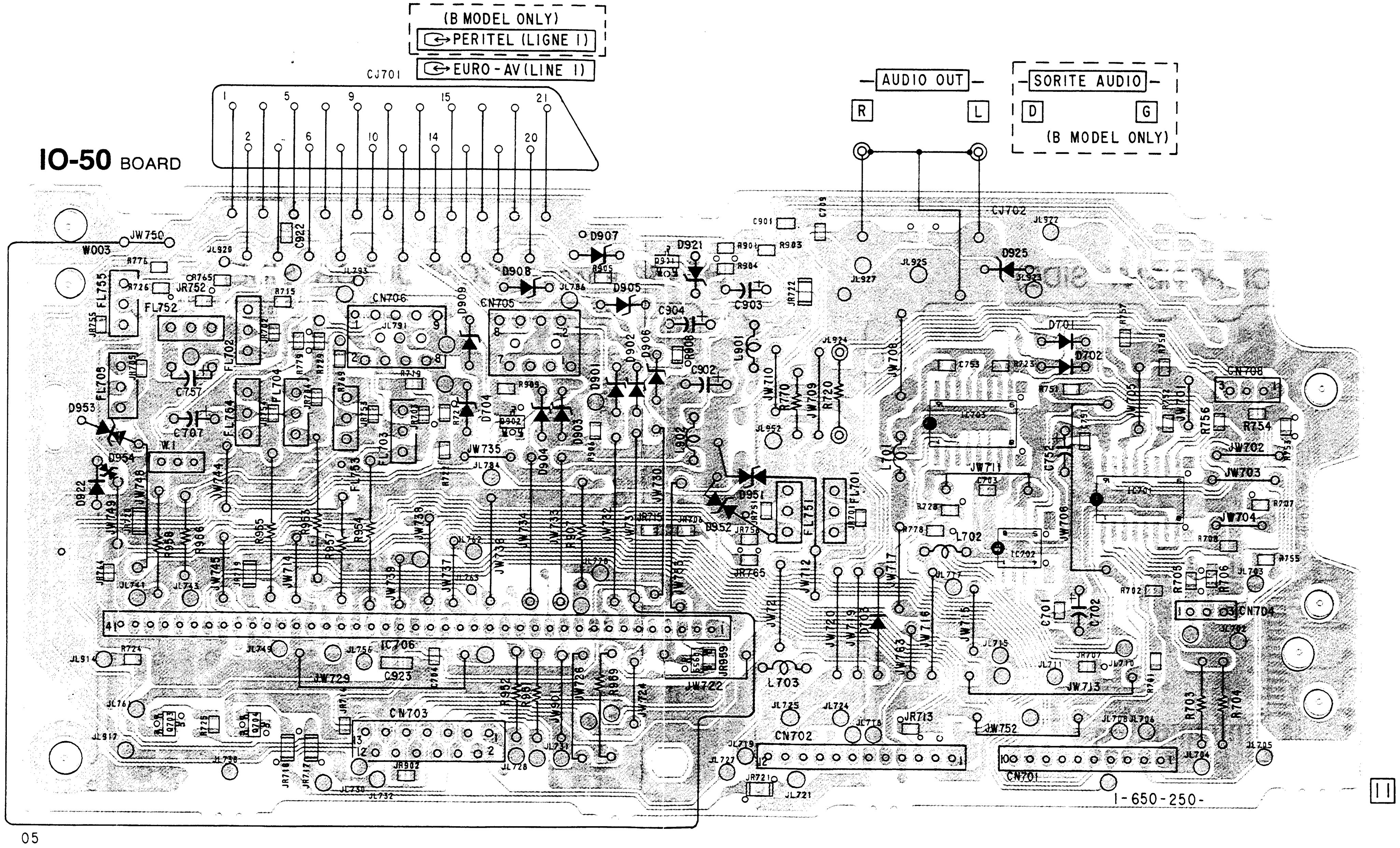


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
A
B
C
D
E
F
G
H
I
J
IO-50 BOARD
TO CP-65 BOARD CN904
(See page 4-45)
TO MA-181 BOARD CN801
(See page 4-18)
TO MA-181 BOARD CN802
(See page 4-18)
TO MA-181 BOARD CN803
(See page 4-18)
TO CP-65 BOARD CN901
(See page 4-45)
TO CP-65 BOARD CN902
(See page 4-45)
IC701
AUDIO MODE SELECT
IC702
BUFFER
IC703
NORMAL AU INPUT SWITCH
IC706
C+ SWITCH
Q703, 704 AV CONT SWITCH
EURO-AV (LINE 1)
PERITEL (LIGNE 1)
AUDIO OUT
SORTIE AUDIO
CJ701 21P EURO
CJ702 2P

## LINE IN/OUT

- There is no indication for destination in the printed wiring board diagram.

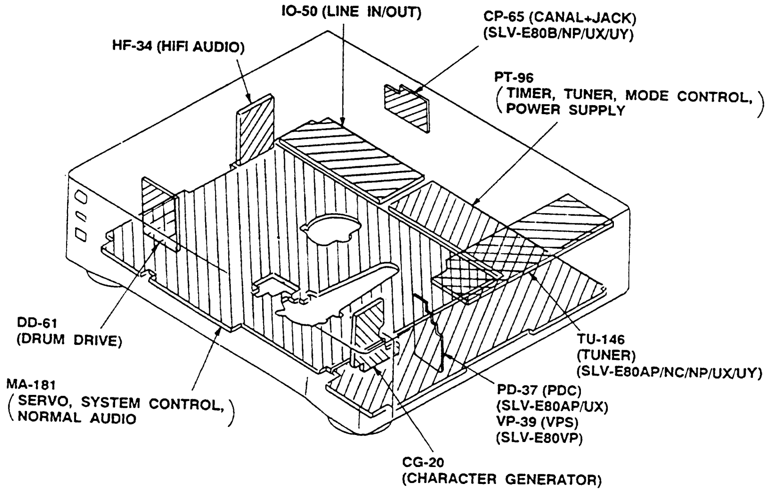
## IO-50 BOARD


(B MODEL ONLY)
PERITEL (LIGNE 1)
EURO-AV (LINE 1)
CJ701
1
5
9
15
21
2
6
10
14
20
AUDIO OUT
R
L
SORITE AUDIO
D
G
(B MODEL ONLY)
CJ702
CN706
CN705
CN708
CN704
CN703
CN702
CN701
IC706
1-650-250-
11
05

No mark : COMMON (REC)
(　　) : PB

- Signal path

| | VIDEO SIGNAL | | | AUDIO SIGNAL |
|---|---|---|---|---|
| | CHROMA | Y | Y/CHROMA | |
| REC | ➡ | ➡➡ | ➡➡➡ | ➡ |
| PB | ⇨ | ⇨⇨ | ⇨⇨⇨ | ⇨ |

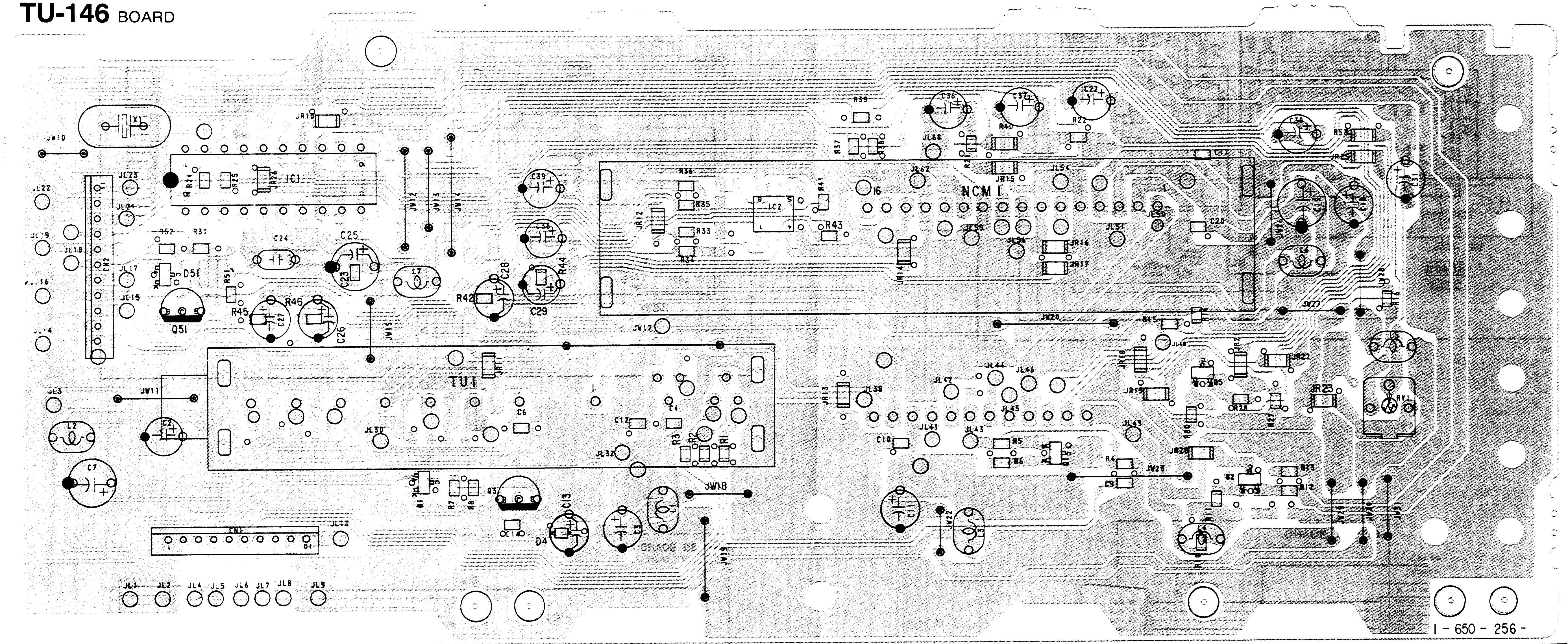

IO-50 (LINE IN/OUT)
CP-65 (CANAL+JACK)
(SLV-E80B/NP/UX/UY)
HF-34 (HIFI AUDIO)
PT-96
(TIMER, TUNER, MODE CONTROL, POWER SUPPLY)
DD-61
(DRUM DRIVE)
MA-181
(SERVO, SYSTEM CONTROL, NORMAL AUDIO)
TU-146
(TUNER)
(SLV-E80AP/NC/NP/UX/UY)
PD-37 (PDC)
(SLV-E80AP/UX)
VP-39 (VPS)
(SLV-E80VP)
CG-20
(CHARACTER GENERATOR)

## TU-146 (TUNER) PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM

– Ref. No.: TU-146 Board; 7,000 series –

(NC,NP,UX,UY MODEL ONLY)

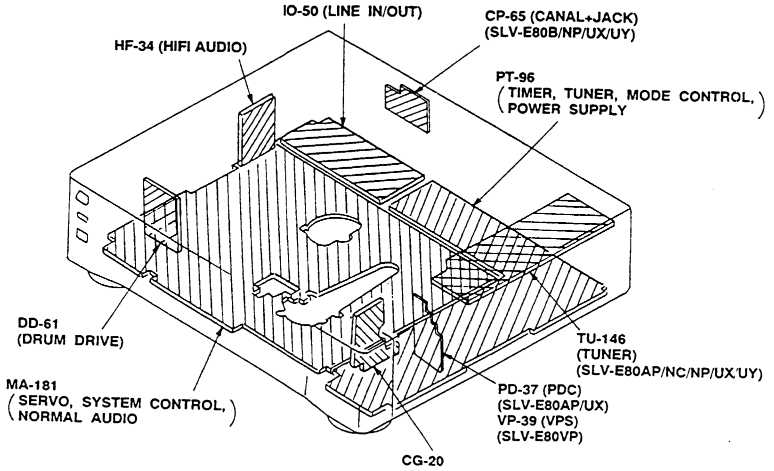
**TU-146** BOARD



X1
IC1
IC2
NCM1
TU1
CN1
CN2
Q51
D51
L2
L7
C2
C7
C25
C28
C29
R42
R43
R44
R45
R46
JR23
RV1
JW11
JW18
I - 650 - 256 -

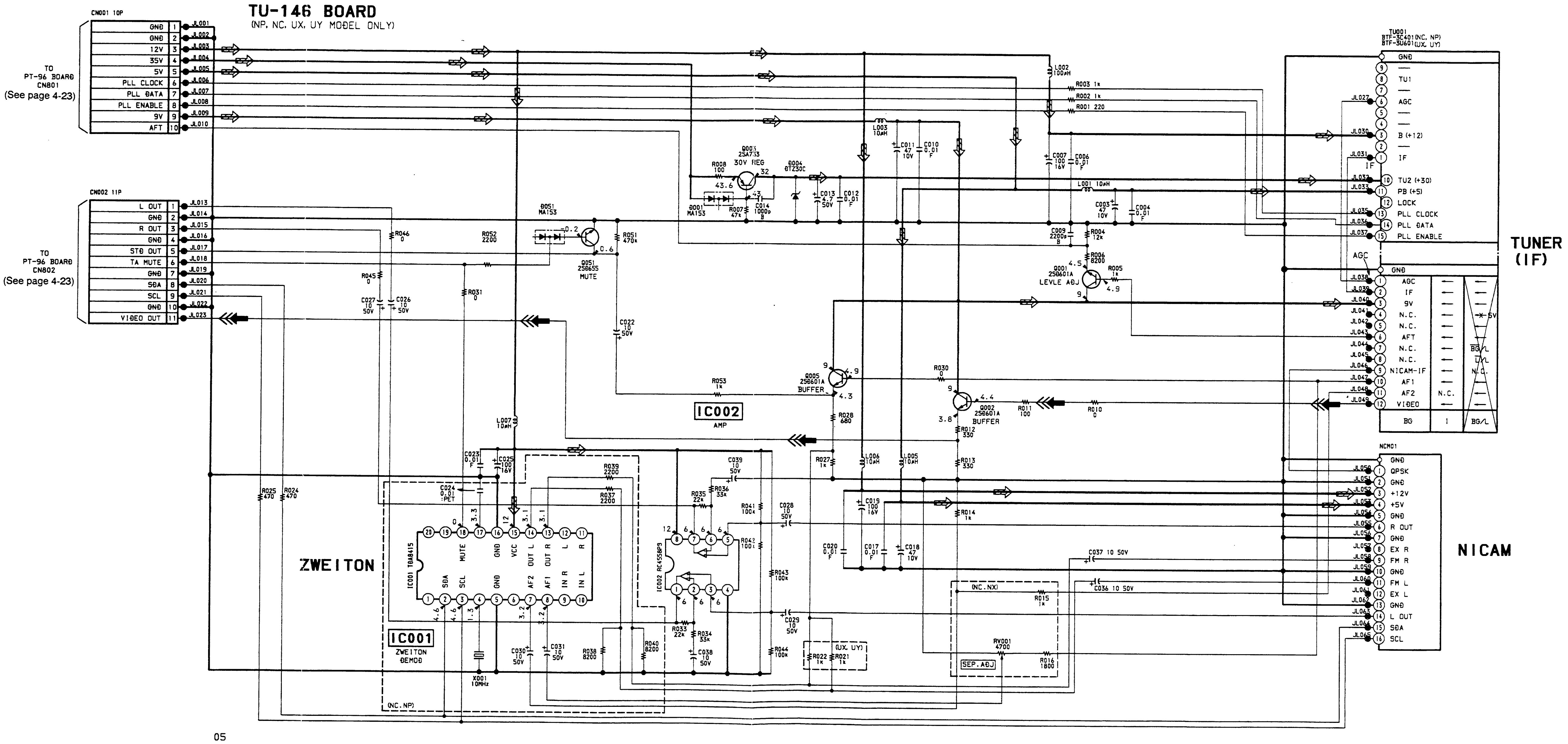
05

11



IO-50 (LINE IN/OUT)
HF-34 (HIFI AUDIO)
CP-65 (CANAL+JACK) (SLV-E80B/NP/UX/UY)
PT-96 (TIMER, TUNER, MODE CONTROL, POWER SUPPLY)
DD-61 (DRUM DRIVE)
MA-181 (SERVO, SYSTEM CONTROL, NORMAL AUDIO)
TU-146 (TUNER) (SLV-E80AP/NC/NP/UX/UY)
PD-37 (PDC) (SLV-E80AP/UX)
VP-39 (VPS) (SLV-E80VP)
CG-20 (CHARACTER GENERATOR)

- There is no indication for destination in the printed wiring board diagram.


TU-146 BOARD
(NP, NC, UX, UY MODEL ONLY)
CN001 10P
GND
GND
12V
35V
5V
PLL CLOCK
PLL DATA
PLL ENABLE
9V
AFT
TO PT-96 BOARD CN801 (See page 4-23)
CN002 11P
L OUT
GND
R OUT
GND
STD OUT
TA MUTE
GND
SDA
SCL
GND
VIDEO OUT
TO PT-96 BOARD CN802 (See page 4-23)
Q003 2SA733 30V REG
D004 DTZ30C
D001 MA153
D051 MA153
Q051 2SD655 MUTE
Q001 2SD601A LEVLE ADJ
Q005 2SD601A BUFFER
Q002 2SD601A BUFFER
IC002 AMP
IC001 ZWEITON DEMOD
IC001 TDA8415
IC002 RC4558P3
ZWEITON
MUTE
GND
VCC
OUT L
OUT R
SDA
SCL
AF2
AF1
IN R
IN L
X001 10MHz
(NC, NP)
(NC, NX)
(UX, UY)
SEP. ADJ
RV001 4700
TU001 BTF-3C401(NC, NP) BTF-3U601(UX, UY)
GND
TU1
AGC
B (+12)
IF
TU2 (+30)
PB (+5)
LOCK
PLL CLOCK
PLL DATA
PLL ENABLE
TUNER (IF)
AGC
IF
9V
N.C.
AFT
NICAM-IF
AF1
AF2
VIDEO
BG
I
BG/L
NCM01
GND
QPSK
GND
+12V
+5V
GND
R OUT
GND
EX R
FM R
GND
FM L
EX L
GND
L OUT
SDA
SCL
NICAM
05

- Signal path

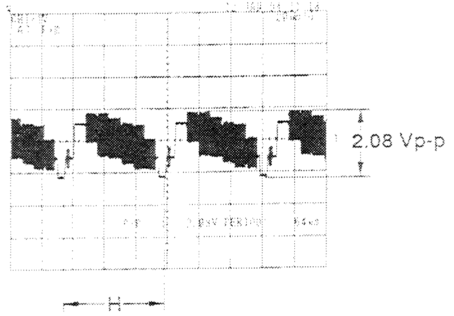
|  | VIDEO SIGNAL |  |  |
|---|---|---|---|
|  | CHROMA | Y | Y/CHROMA |
| REC | ➡ | ➡➡ | ➡➡➡ |

## CG-20 (CHARACTER GENERATOR), CP-65 (CANAL + JACK), PD-37 (PDC), VP-39 (VPS) PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAM

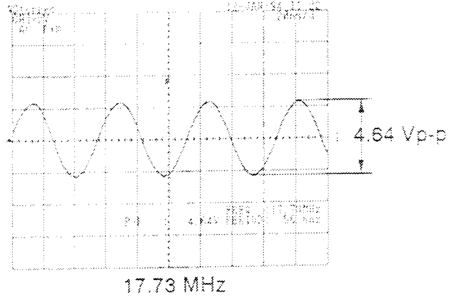
– Ref. No.: CG-20 Board; 4,000 series, CP-65, PD-37 and VP-39 Boards; 9,000 series –

### CG-20 BOARD

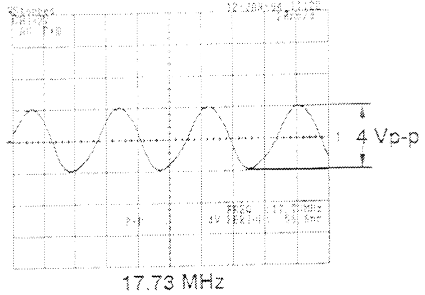
① IC401 ③, ㉕ REC/PB



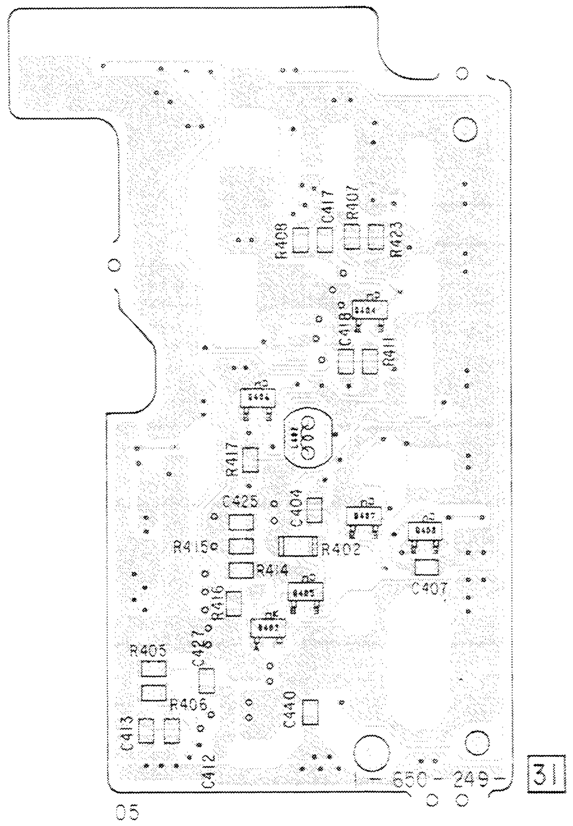
② IC401 ⑧ REC/PB



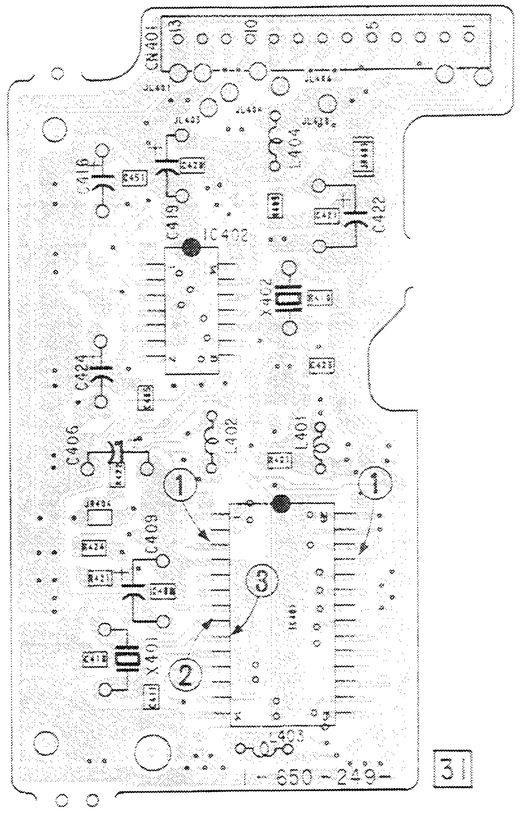
③ IC401 ⑨ REC/PB



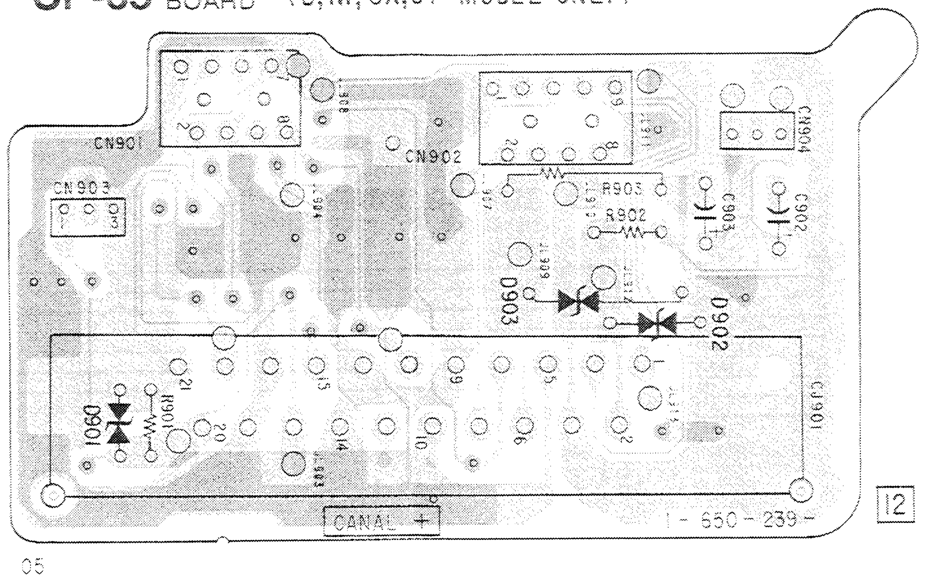
### CG-20 BOARD (COMPONENT SIDE)


R408
C417
R407
R423
C418
R411
R417
C425
C404
R415
R402
R414
R416
C407
R405
C427
R406
C440
C413
C412
1-650-249-
31
05

### CG-20 BOARD (CONDUCTOR SIDE)

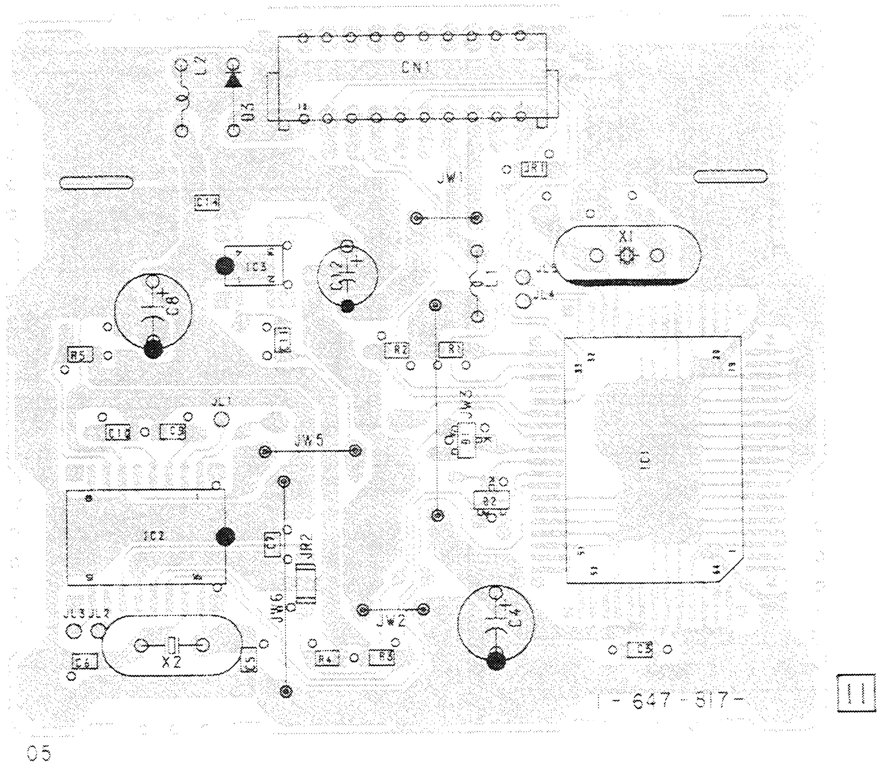

CN401
C416
C419
IC402
C422
C424
C406
L402
L401
C409
X401
L404
①
②
③
1-650-249-
31

### CP-65 BOARD (B, NP, UX, UY MODEL ONLY)

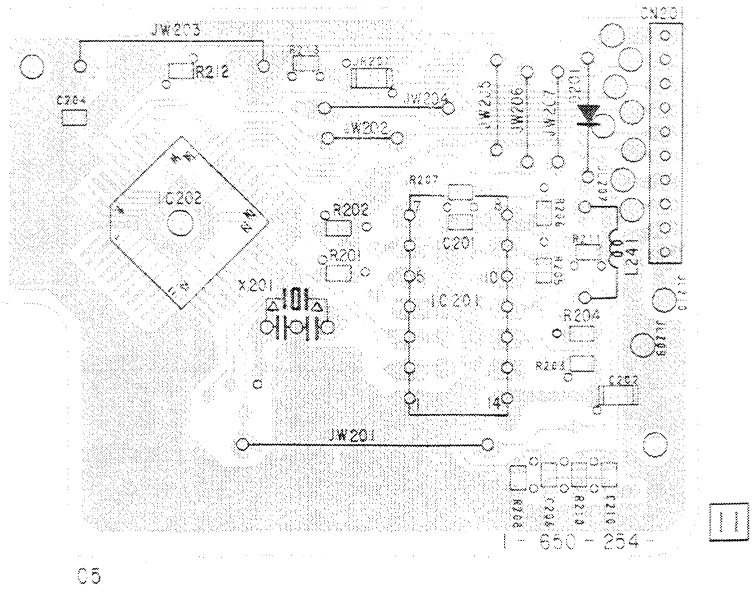

CN901
CN902
CN903
CN904
R903
R902
C903
C902
D903
D902
D901
C901
CANAL +
1-650-239-
12
05

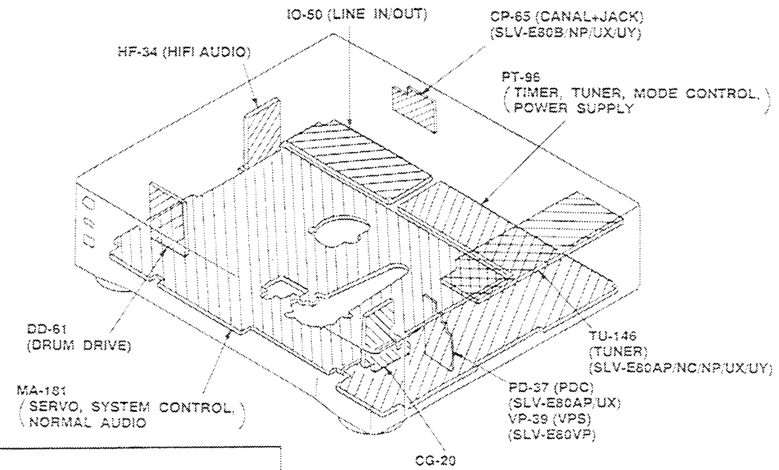
- There is no indication for destination in the printed wiring board diagram.

### PD-37 BOARD (AP, UY MODEL ONLY)

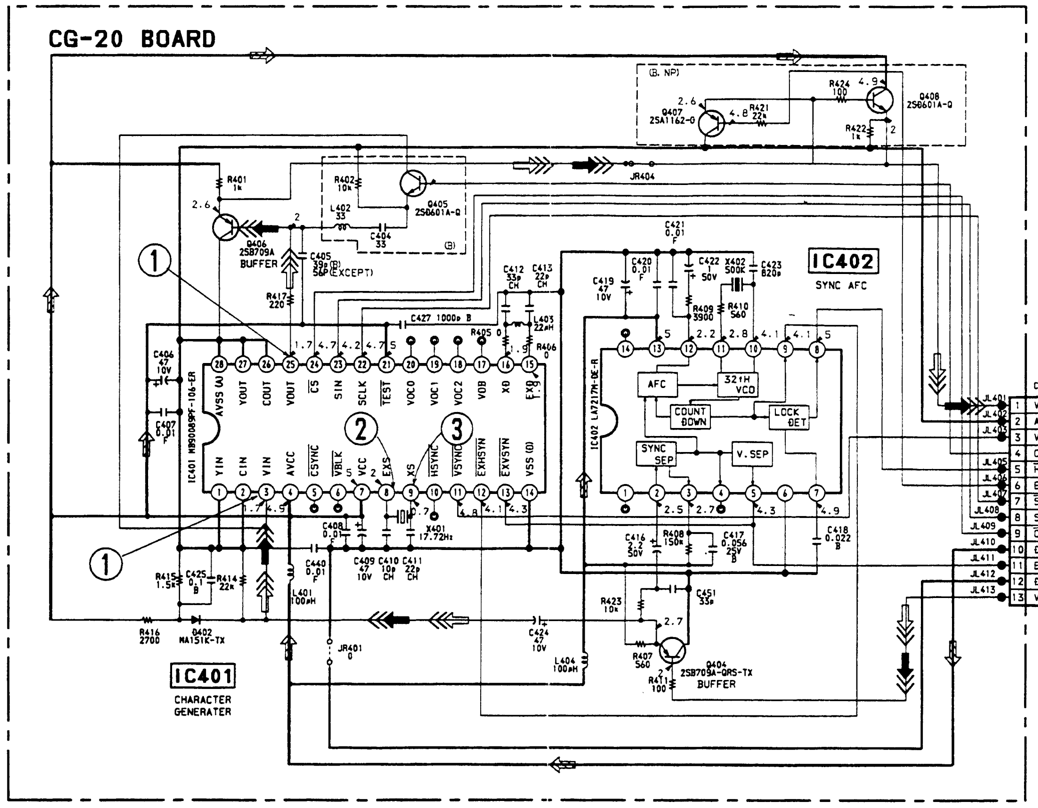

CN1
L2
D5
JW1
IC3
C12
C8
X1
IC2
JW5
JW6
JW2
X2
C4
IC1
1-647-517-
11
05

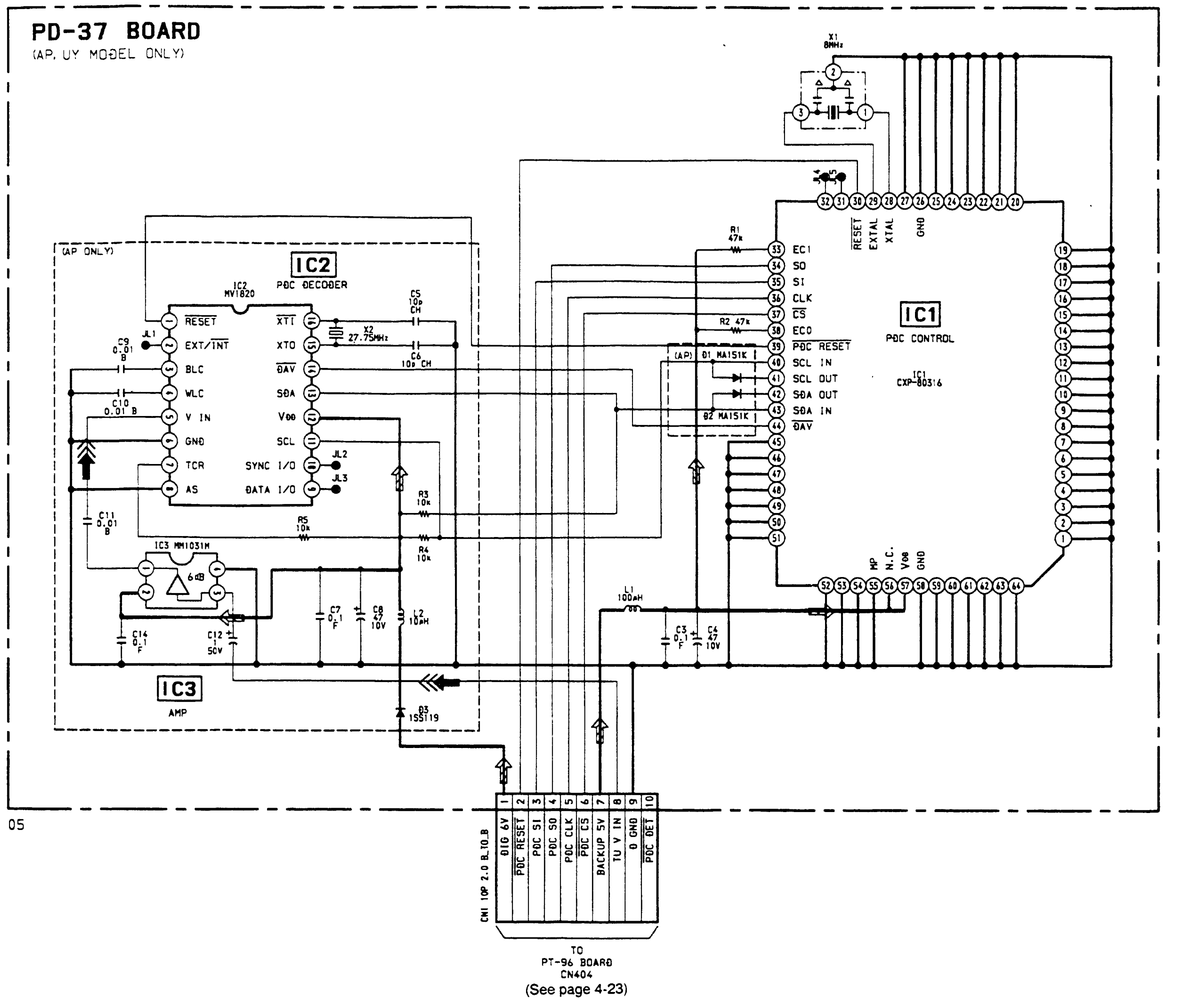
### VP-39 BOARD (VP MODEL ONLY)

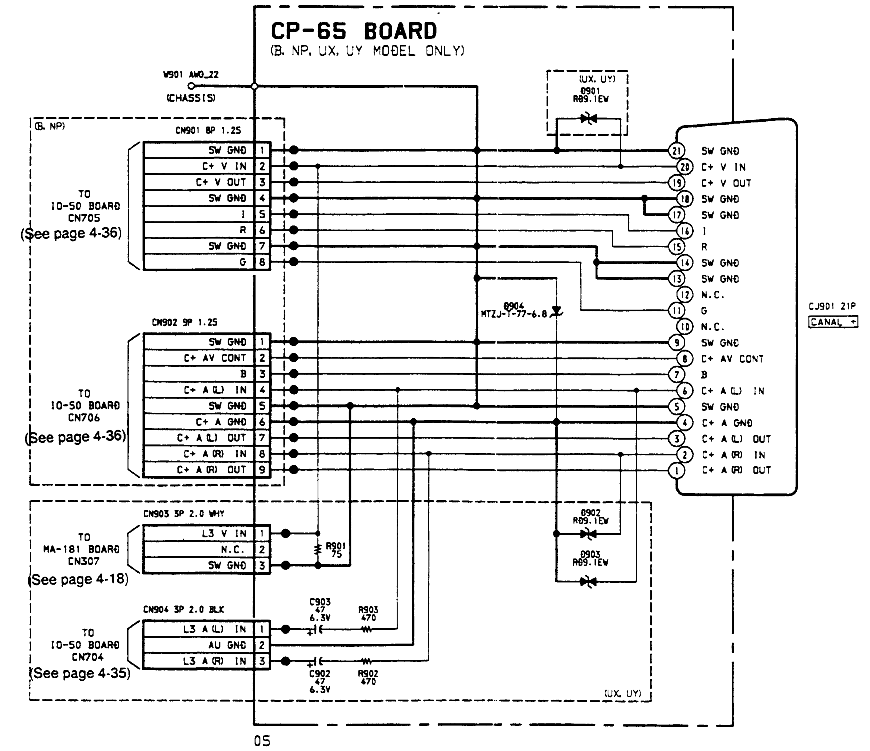

JW203
R212
C204
JW204
JW202
CN201
IC202
R202
R201
X201
C201
IC201
R204
L241
JW201
1-650-254-
11
05

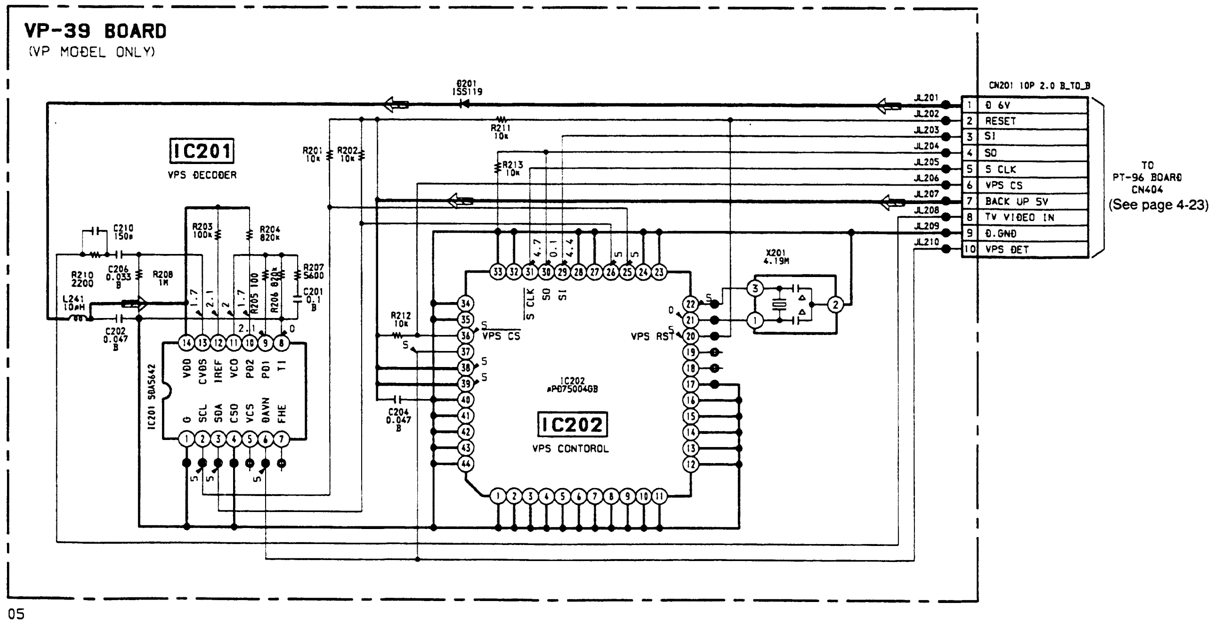

IO-50 (LINE IN/OUT)
CP-65 (CANAL+JACK) (SLV-E80B/NP/UX/UY)
HF-34 (HIFI AUDIO)
PT-96 (TIMER, TUNER, MODE CONTROL, POWER SUPPLY)
DD-61 (DRUM DRIVE)
MA-181 (SERVO, SYSTEM CONTROL, NORMAL AUDIO)
TU-146 (TUNER) (SLV-E80AP/NC/NP/UX/UY)
PD-37 (PDC) (SLV-E80AP/UX)
VP-39 (VPS) (SLV-E80VP)
CG-20 (CHARACTER GENERATOR)

## PERIPHERY


CG-20 BOARD
IC401
CHARACTER GENERATOR
IC402
SYNC AFC
Q406 2SB709A BUFFER
Q404 2SB709A-QRS-TX BUFFER
Q405 2SC4601A-Q
Q407 2SA1162-Q
Q408 2SC4601A-Q
CN401 13P
1 V OUT
2 AN GND
3 V SYNC
4 OSD V COLOR CONT
5 H DET
6 EXHSYNC/P.CONT
7 S CLK
8 SI BUS
9 OSD CS
10 D 5V
11 EXVSYNC
12 D GND
13 V IN
TO PT-96 BOARD CN405 (See page 4-23)
AFC
321H VCO
COUNT DOWN
LOCK DET
SYNC SEP
V.SEP
X401 17.72MHz
05

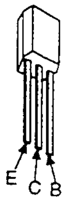

PD-37 BOARD
(AP, UY MODEL ONLY)
(AP ONLY)
IC2 MV1820
PDC DECODER
IC1
PDC CONTROL
IC1 CXP-80316
IC3 MM1031M
AMP
X1 8MHz
X2 27.75MHz
CN1 10P 2.0 B_TO_B
1 D10 6V
2 PDC RESET
3 PDC SI
4 PDC SO
5 PDC CLK
6 PDC CS
7 BACKUP 5V
8 TU V IN
9 D GND
10 PDC DET
TO PT-96 BOARD CN404 (See page 4-23)
05


CP-65 BOARD
(B, NP, UX, UY MODEL ONLY)
W901 AWG_22 (CHASSIS)
(B, NP)
CN901 8P 1.25
TO 10-50 BOARD CN705 (See page 4-36)
CN902 9P 1.25
TO 10-50 BOARD CN706 (See page 4-36)
CN903 3P 2.0 WHT
TO MA-181 BOARD CN307 (See page 4-18)
CN904 3P 2.0 BLK
TO 10-50 BOARD CN704 (See page 4-35)
CJ901 21P
(UX, UY)
D904 MTZJ-T-77-6.8
05

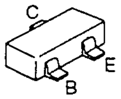

VP-39 BOARD
(VP MODEL ONLY)
IC201
VPS DECODER
IC201 SDA5642
IC202
VPS CONTOROL
IC202 μPD7500408
X201 4.1943M
D201 1SS119
CN201 10P 2.0 B_TO_B
1 D 6V
2 RESET
3 SI
4 SO
5 S CLK
6 VPS CS
7 BACK UP 5V
8 TV VIDEO IN
9 D.GND
10 VPS DET
TO PT-96 BOARD CN404 (See page 4-23)
05

## 4-3. SEMICONDUCTORS

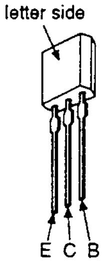
**DTA144ES**
**DTC144ES**
**2SC4040-TL2-Q**



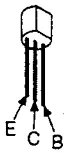
**DTC114TK-T146**
**MSD601-RT1**
**UN211L**
**UN2111**
**UN2211**
**UN2213**
**2SA1162-G**
**2SA1162Y-TE85L**
**2SC2712-YG**
**2SD601A-Q**



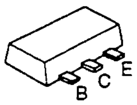
**UN411L**
**UN4111**
**2SC2785-HFE**


letter side
E
C
B

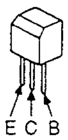
**2SA733-K**
**2SD655E**



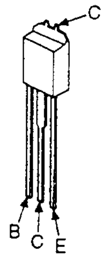
**2SB1122-S**
**2SD1834**



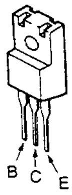
**2SB733-34**
**2SD773**



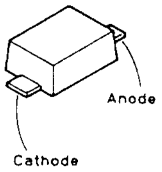
**2SC3073-Y**



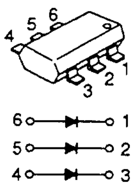
**2SD2394-F**



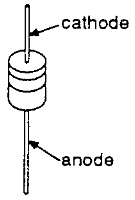
**DTZ30C-TT11**


Anode
Cathode

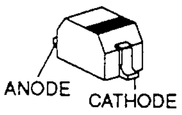
**IMN10**


4
5
6
3
2
1
6
1
5
2
4
3

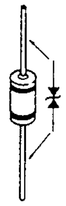
**MTZJ-13**
**MTZJ-4.3**
**RD33ES-B2**
**RD4.3ES-B1**
**RD4.7ES-B2**
**RD5.1ES-B2**
**RD6.2ES-B2**
**RD6.8ES-B2**
**1SS119**
**11ES2**


cathode
anode

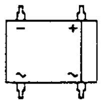
**MA110**


ANODE
CATHODE

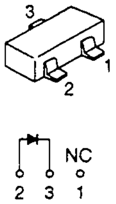
**RD9.1E-W**



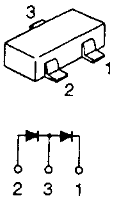
**S1WB60**



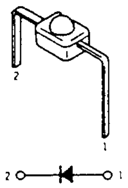
**1SS184**
**1SS193**



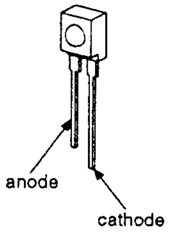
**1SS226**



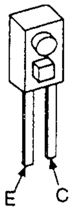
**GL-1PR102**



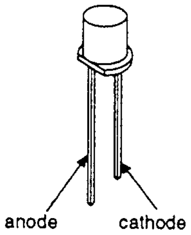
**GL451VS1**


anode
cathode

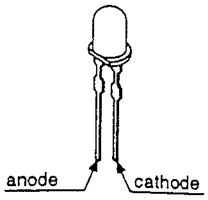
**PT483F1S**



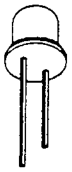
**SEL3713K-TP5**


anode
cathode

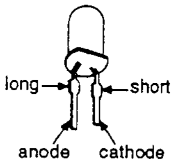
**SLR34DC3**
**SLR34VC3**


anode
cathode

**SLR-34MCA49**
**SLR-34VCA49**



**TLY123**


long
short
anode
cathode

# SECTION 5
# REPAIR PARTS LIST

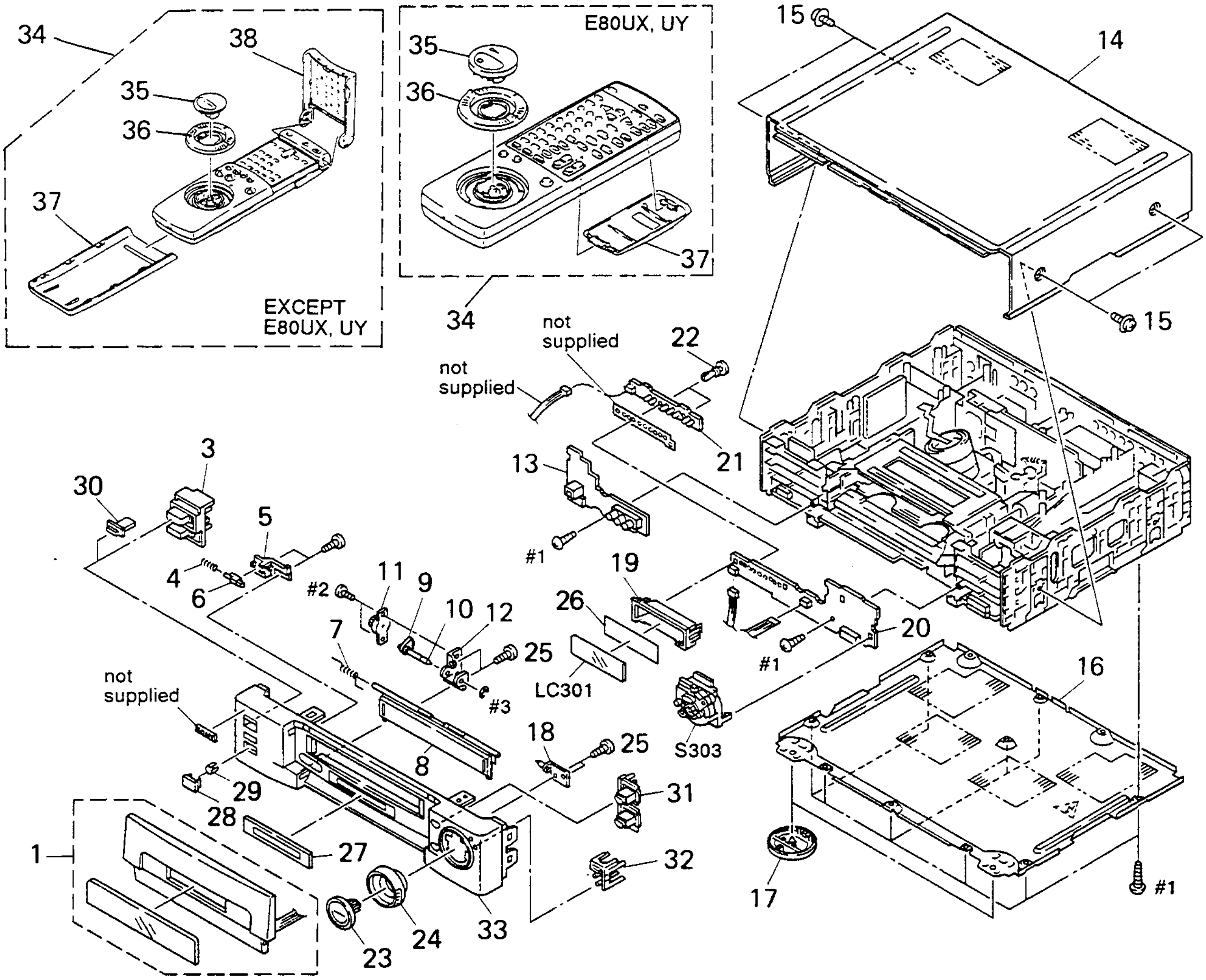
## 5-1. EXPLODED VIEWS

NOTE:

- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list is given in the last of this parts list.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

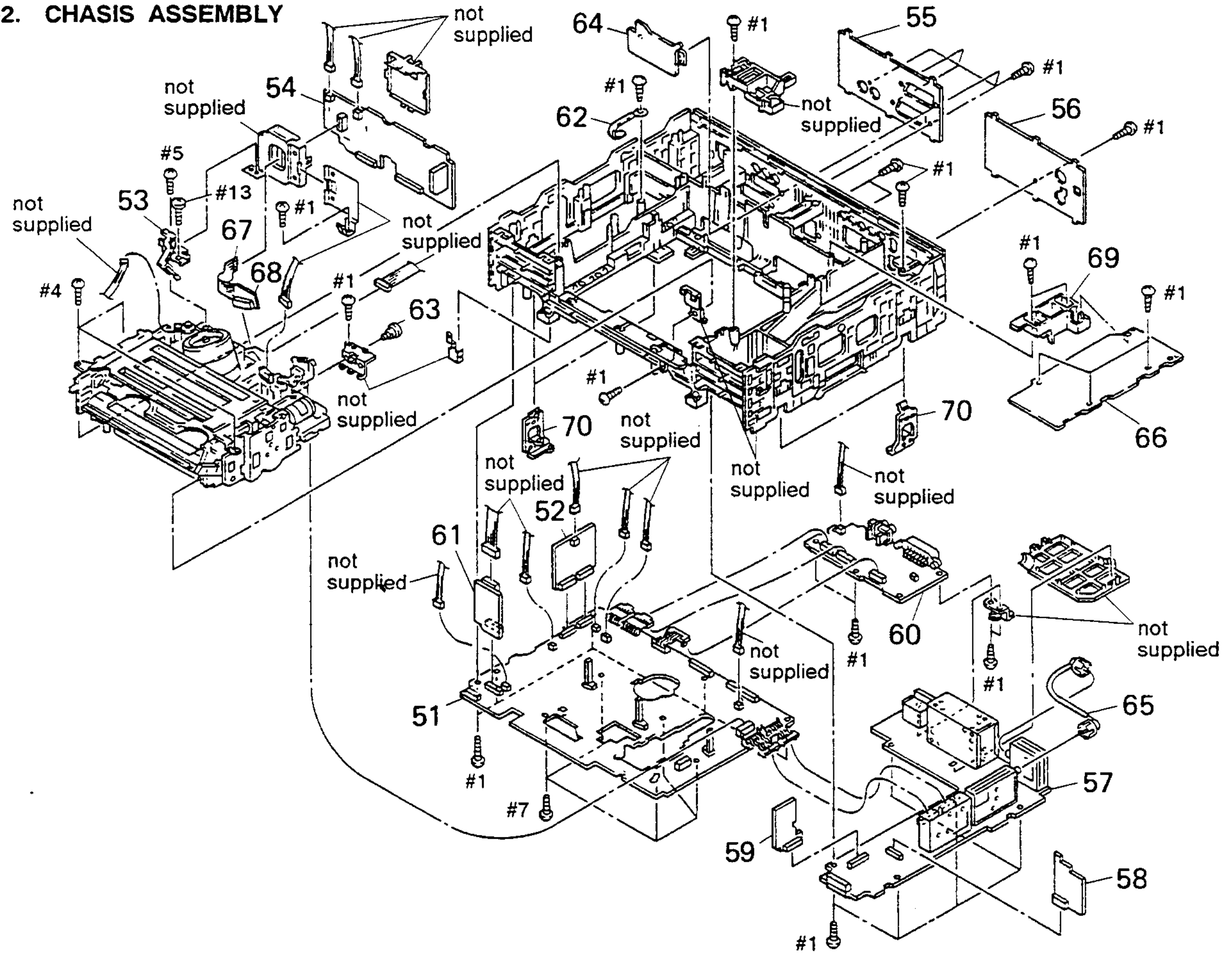
### 5-1-1. FRONT PANEL AND CABINET ASSEMBLIES



| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| 1 | 1-467-387-11 | SWITCH BLOCK. CONTROL (E80AP. UX. UY) | |
| 1 | 1-467-387-21 | SWITCH BLOCK. CONTROL (E80VP) | |
| 1 | 1-467-387-31 | SWITCH BLOCK. CONTROL (E80B) | |
| 1 | 1-467-387-41 | SWITCH BLOCK. CONTROL (E80IT. NC. NP) | |
| 3 | 3-957-389-01 | BUTTON. POWER/EJECT | |
| 4 | 3-957-388-01 | SPRING. COMPRESSION | |
| * 5 | 3-957-312-11 | HOLDER. LOCK CLAW | |
| 6 | 3-944-564-01 | CLAW. LOCK | |
| 7 | 3-951-089-01 | SPRING (GE). FL | |
| 8 | 3-951-086-81 | DOOR. CASSETTE (EXCEPT E80) | |
| 8 | 3-957-493-01 | DOOR. CASSETTE (E80B) | |
| 9 | 3-957-382-01 | GEAR. FULCRUM | |
| * 10 | 3-957-383-01 | SHAFT. FULCRUM GEAR | |
| 11 | 3-319-224-11 | DAMPER. SMALL | |
| * 12 | 3-957-381-01 | PLATE. FULCRUM (LEFT). DOOR | |
| * 13 | A-6720-592-A | MF-243 BOARD. COMPLETE (EXCEPT E80VP) | |
| * 13 | A-6720-596-A | MF-243 BOARD. COMPLETE (E80VP) | |
| * 14 | 3-957-479-01 | CASE. UPPER | |
| 15 | 3-710-901-11 | SCREW (TP3X8). CASE | |
| * 16 | 3-957-480-01 | PLATE. BOTTOM | |
| 17 | 3-957-246-01 | INSULATOR | |
| 18 | X-3943-587-1 | PLATE (RIGHT) ASSY. FULCRUM. DOOR | |
| * 19 | 3-957-314-11 | HOLDER LCD | |
| * 20 | A-6721-591-A | MF-242 BOARD. COMPLETE (E80B) | |
| * 20 | A-6721-593-A | MF-242 BOARD. COMPLETE (EXCEPT E80B) | |
| * 21 | A-6720-579-A | PL-24 BOARD. COMPLETE | |
| 22 | 3-957-327-01 | RIVET. PUSH | |
| 23 | X-3943-591-1 | BUTTON ASSY. FUNCTION (EXCEPT E80B) | |
| 23 | X-3943-632-1 | BUTTON ASSY. FUNCTION (E80B) | |
| 24 | X-3943-556-1 | RING ASSY. SHUTTLE | |
| 25 | 4-921-277-11 | SCREW (B2. 6X8). TAPPING. BIND | |

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| 26 | 3-957-338-01 | ILLUMINATOR | |
| 27 | 3-957-399-11 | PLATE. TRANSPARENT | |
| 28 | 3-957-234-11 | FILTER. REMOTE CONTROL | |
| 29 | 3-951-078-11 | REFLECTOR. REMOTE CONTROL | |
| 30 | 3-951-076-11 | LENS. POWER | |
| 31 | X-3943-627-1 | BUTTON ASSY. P/H | |
| 32 | 3-957-311-11 | LENS. REC | |
| 33 | 3-958-121-51 | PANEL. FRONT (E80UY) | |
| 33 | 3-957-481-01 | PANEL. FRONT (E80AP) | |
| 33 | 3-957-481-11 | PANEL. FRONT (E80UX) | |
| 33 | 3-957-481-21 | PANEL. FRONT (E80IT. VP) | |
| 33 | 3-957-481-31 | PANEL. FRONT (E80B) | |
| 33 | 3-957-481-41 | PANEL. FRONT (E80NP) | |
| 33 | 3-957-481-51 | PANEL. FRONT (E80NC) | |
| 34 | 1-467-384-11 | REMOTE COMMANDER (RMT-V141A) (E80UX. UY) | |
| 34 | 1-467-385-21 | REMOTE COMMANDER (RMT-V142A) (E80NC. NP) | |
| 34 | 1-467-546-21 | REMOTE COMMANDER (RMT-V146A) (E80B) | |
| 34 | 1-467-546-51 | REMOTE COMMANDER (RMT-V146D) (E80AP. IT. VP) | |
| 35 | X-3943-637-1 | BUTTON ASSY (E80B) | |
| 35 | X-3943-638-1 | BUTTON ASSY (EXCEPT E80B) | |
| 36 | 3-957-513-11 | SHUTTLE RING | |
| 37 | 3-708-813-21 | COVER. SLIDE (E80NC. NP) | |
| 37 | 3-708-813-31 | COVER. SLIDE (E80AP. IT. VP) | |
| 37 | 3-708-813-41 | COVER. SLIDE (E80B) | |
| 37 | 3-708-817-01 | COVER. BATTERY (E80UX. UY) | |
| 38 | 3-708-876-01 | COVER. ENGLISH (E80AP. IT. NC. NP. VP) | |
| 38 | 3-708-876-11 | COVER. FRENCH (E80B) | |
| LC301 | 1-810-354-11 | DISPLAY PANEL. LIQUID CRYSTAL (EXCEPT E80B) | |
| LC301 | 1-810-355-11 | DISPLAY PANEL. LIQUID CRYSTAL (E80B) | |
| S303 | 1-692-726-11 | SWITCH. ROTARY (LED) (PLAY/STOP/REW/FF) | |

## 5-1-2. CHASIS ASSEMBLY



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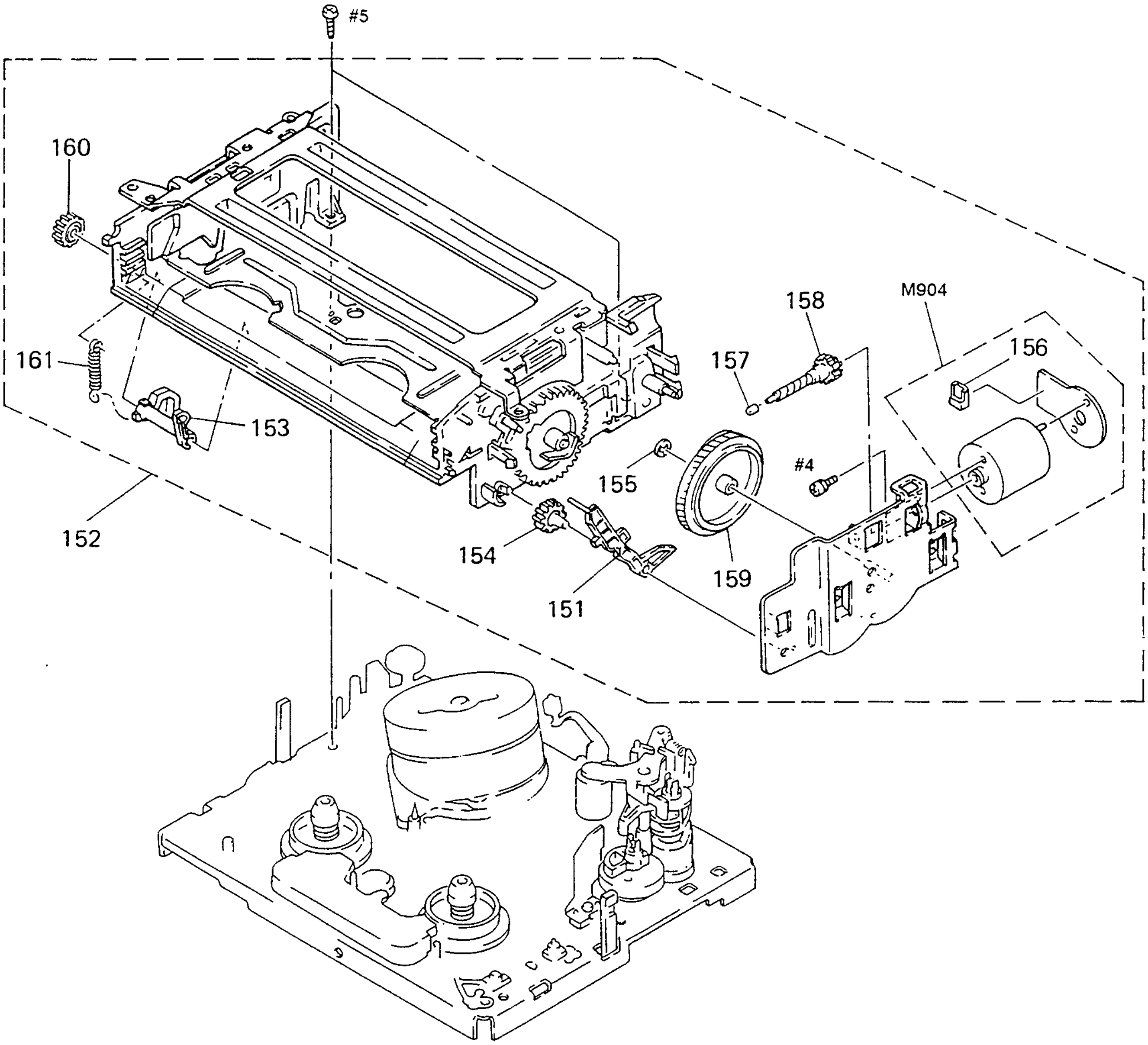
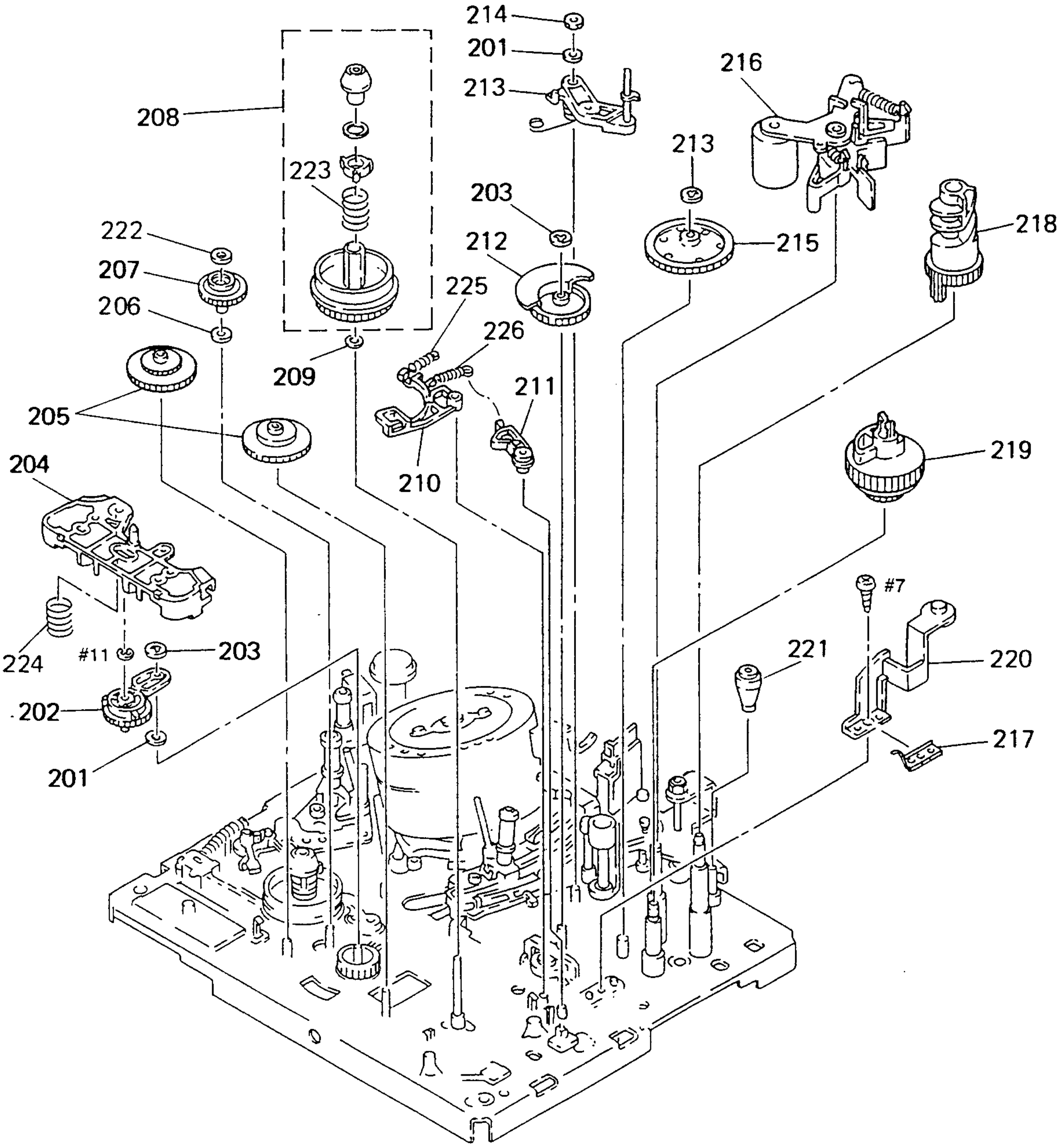
| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| * 51 | A-6782-270-A | MA-181 BOARD, COMPLETE (E80UX, UY) | |
| * 51 | A-6782-271-A | MA-181 BOARD, COMPLETE (E80NP) | |
| * 51 | A-6782-274-A | MA-181 BOARD, COMPLETE (E80B) | |
| * 51 | A-6782-276-A | MA-181 BOARD, COMPLETE (E80AP, IT, NC, VP) | |
| * 52 | A-6721-595-A | HF-34 BOARD, COMPLETE | |
| 53 | X-3943-595-1 | GROUND ASSY (GT), SHAFT | |
| * 54 | A-6727-542-A | RV-33 BOARD, COMPLETE (E80B) | |
| * 54 | A-6727-545-A | RV-33 BOARD, COMPLETE (EXCEPT E80B) | |
| * 55 | 3-957-489-01 | PLATE, JACK (IO) (E80AP, IT, NC, VP) | |
| * 55 | 3-957-489-11 | PLATE, JACK (IO) (E80B) | |
| * 55 | 3-957-489-21 | PLATE, JACK (IO) (E80NP) | |
| * 55 | 3-957-489-31 | PLATE, JACK (IO) (E80UX, UY) | |
| * 56 | 3-957-491-01 | PLATE, JACK (TU) (EXCEPT E80B) | |
| * 56 | 3-957-491-11 | PLATE, JACK (TU) (E80B) | |
| * 57 | A-6727-537-A | PT-96 BOARD, COMPLETE (E80UX, UY) | |
| * 57 | A-6727-538-A | PT-96 BOARD, COMPLETE (E80NP) | |
| * 57 | A-6727-541-A | PT-96 BOARD, COMPLETE (E80B) | |
| * 57 | A-6727-544-A | PT-96 BOARD, COMPLETE (E80AP) | |
| * 57 | A-6727-546-A | PT-96 BOARD, COMPLETE (E80VP) | |
| * 57 | A-6727-547-A | PT-96 BOARD, COMPLETE (E80NC) | |
| * 57 | A-6727-549-A | PT-96 BOARD, COMPLETE (E80IT) | |
| * 58 | A-6781-279-A | PD-37 BOARD, COMPLETE (E80AP) | |
| * 58 | A-6781-281-A | VP-39 BOARD, COMPLETE (E80VP) | |
| * 58 | A-6781-309-A | PD-37 BOARD, COMPLETE (E80UY) | |
| * 59 | A-6754-660-A | CG-20 BOARD, COMPLETE (E80B) | |
| * 59 | A-6754-662-A | CG-20 BOARD, COMPLETE (E80NP) | |
| * 59 | A-6754-691-A | CG-20 BOARD, COMPLETE (E80AP, IT, NC, UX, UY, VP) | |
| * 60 | A-6754-655-A | IO-50 BOARD, COMPLETE (E80UX, UY) | |
| * 60 | A-6754-659-A | IO-50 BOARD, COMPLETE (E80B, NP) | |
| * 60 | A-6754-661-A | IO-50 BOARD, COMPLETE (E80AP, IT, NC) | |
| * 60 | A-6754-663-A | IO-50 BOARD, COMPLETE (E80VP) | |
| * 61 | A-6781-280-A | DD-61 BOARD, COMPLETE | |
| 62 | 3-703-150-11 | STOPPER, WIRING | |
| 63 | 3-736-055-01 | SCREW (3X8), TAPPING | |
| * 64 | A-6781-275-A | CP-65 BOARD, COMPLETE (E80B, NP) | |
| * 64 | A-6781-282-A | CP-65 BOARD, COMPLETE (E80UX, UY) | |
| 65 | 1-555-110-00 | CABLE, PIN (E80NC, NP, UX, UY) | |
| 65 | 1-558-924-21 | CABLE, PIN (E80AP, B, IT, VP) | |
| * 66 | A-6754-656-A | TU-146 BOARD, COMPLETE (E80UX, UY) | |
| * 66 | A-6754-657-A | TU-146 BOARD, COMPLETE (E80NC, NP) | |
| 67 | 1-650-282-11 | FP-72 FLEXIBLE BOARD | |
| 68 | 1-695-486-11 | CONNECTOR, BOARD TO BOARD 10P | |
| * 69 | 3-957-546-01 | HOLDER (TU), PCB (E80NC, NP, UX) | |
| * 70 | 3-957-387-01 | STOPPER (GT), UPPER CASE | |

## 5-1-3. FL CASSETTE COMPARTMENT ASSEMBLY



| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| 151 | 3-741-935-06 | LEVER, FLAT DOOR | |
| 152 | A-6751-421-A | FL BLOCK ASSY (M2) | |
| 153 | 3-736-163-01 | LEVER, ERASING PROTECTION | |
| 154 | X-3727-775-2 | GEAR (RIGHT) ASSY, MIDWAY | |
| 155 | 3-696-510-01 | WASHER (3), STOPPER | |
| 156 | 1-564-413-11 | PIN, CONNECTOR 3P | |
| 157 | 3-716-144-02 | RETAINER, WORM | |
| 158 | 3-736-100-01 | GEAR (FL), WORM | |
| 159 | 3-736-164-01 | WHEEL (FL), WORM | |
| 160 | 3-736-044-02 | GEAR (LEFT), MIDWAY | |
| 161 | 3-739-687-01 | SPRING, TENSION (REC PROOF) | |
| M904 | X-3727-784-1 | MOTOR ASSY | |

### 5-1-4. MECHANISM CHASSIS ASSEMBLY (1)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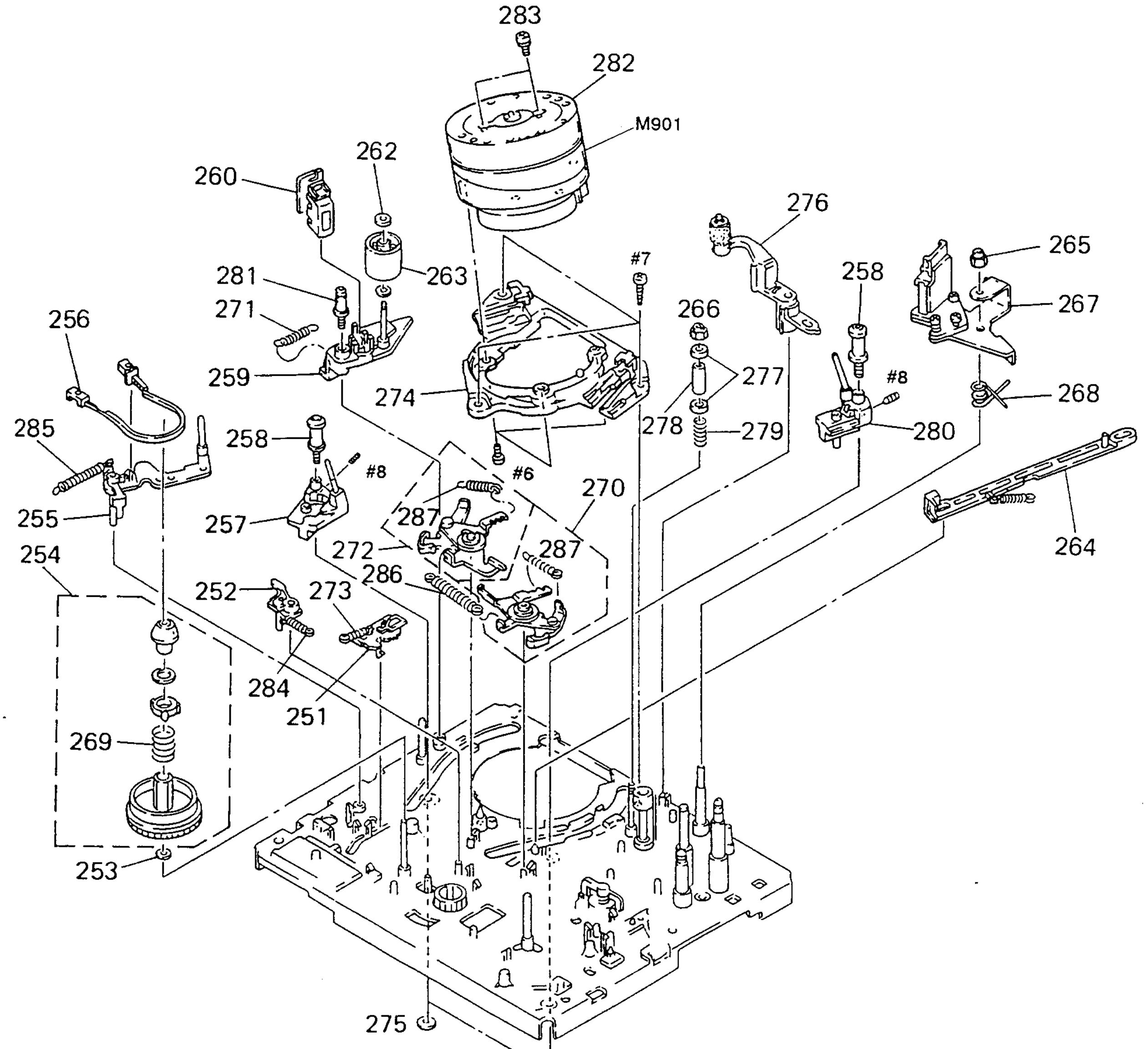
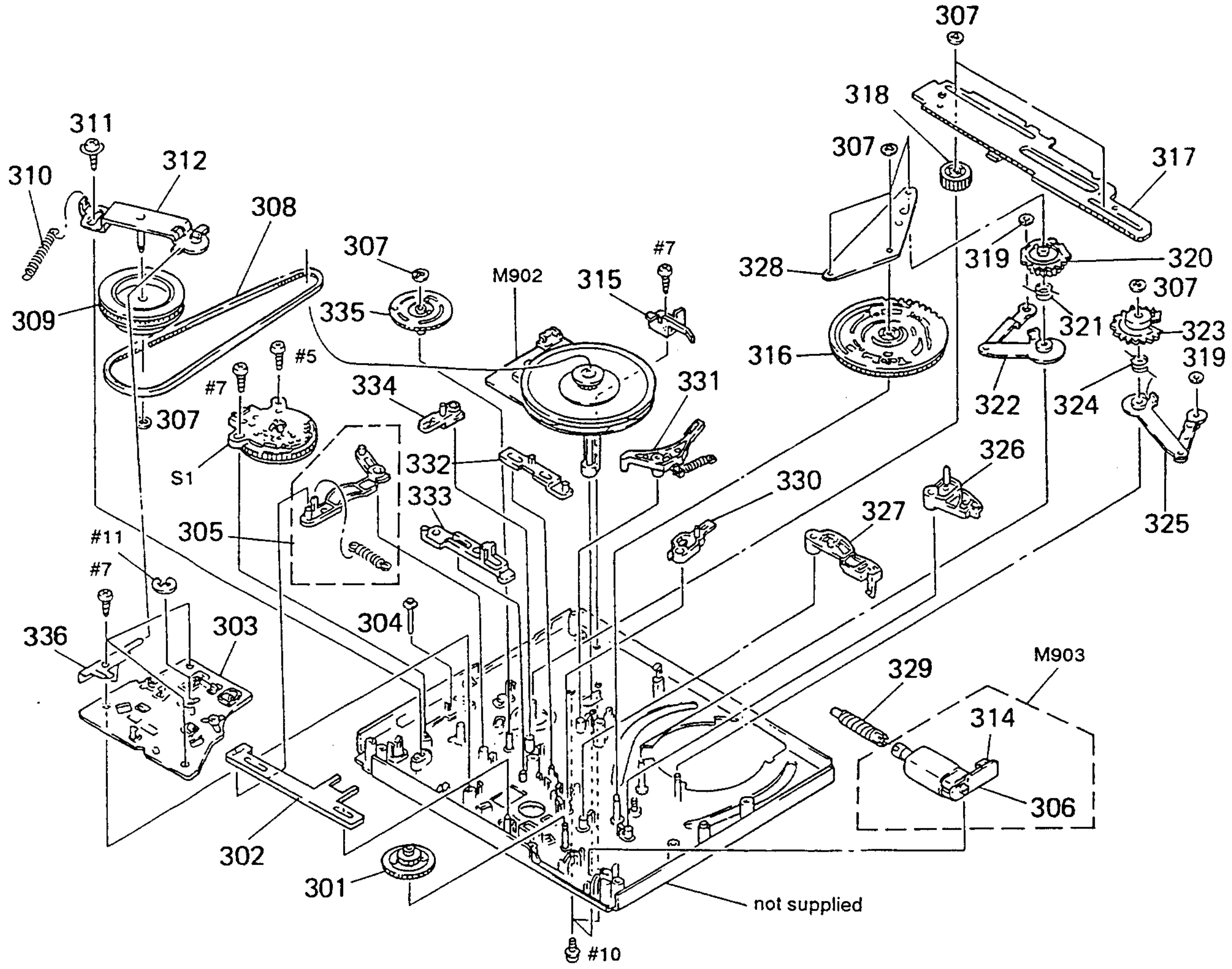
| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| 201 | 3-701-748-00 | CLAMP | |
| 202 | X-3727-776-1 | ARM ASSY, PENDULUM | |
| 203 | 3-669-595-00 | WASHER (2), STOPPER | |
| 204 | 3-736-172-02 | RELEASE, LOCK, REEL | |
| 205 | X-3727-795-1 | GEAR ASSY, RELAY | |
| 206 | 3-736-074-01 | RETAINER (SMALL), THRUST | |
| 207 | 3-736-037-01 | GEAR, REW | |
| 208 | X-3727-789-1 | TABLE ASSY, REEL | |
| 209 | 3-738-212-21 | RETAINER, THRUST, REEL TABLE | |
| 210 | X-3733-335-1 | BRAKE ASSY (AT), T SOFT | |
| 211 | 3-736-105-01 | ARM, REV BRAKE | |
| 212 | 3-736-143-01 | GEAR, RVS CAM | |
| 213 | X-3942-218-1 | ARM ASSY, RVS | |
| 214 | 3-736-740-01 | NUT (M2X0.25), NYLON | |
| 215 | 3-736-116-01 | GEAR, COMMUNICATION | |
| 216 | X-3727-770-1 | PINCH ROLLER BLOCK ASSY | |
| 217 | 3-744-227-01 | SPRING, FL GROUND | |
| 218 | 3-952-182-01 | CAM, ELEVATOR | |
| 219 | 3-943-700-01 | GEAR, PRESS CAM | |
| 220 | 3-946-652-01 | OPENER, LID | |
| 221 | 3-738-250-01 | SCREW, AC ADJUSTMENT | |
| 222 | 3-736-069-01 | RETAINER, SPRING | |
| 223 | 3-739-621-01 | SPRING, COMPRESSION | |
| 224 | 3-736-020-11 | SPRING, COMPRESSION | |
| 225 | 3-736-024-01 | SPRING, TENSION (FOR T SOFT BRAKE) | |
| 226 | 3-736-025-01 | SPRING, TENSION (REW BRAKE) | |

## 5-1-5. MECHANISM CHASSIS ASSEMBLY (2)



| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| * 251 | A-6759-483-A | TAKE-UP BLOCK ASSY, S | |
| 252 | X-3727-773-1 | ARM ASSY (S), SOFT BRAKE | |
| 253 | 3-738-212-21 | RETAINER, THRUST, REEL TABLE | |
| 254 | X-3941-194-1 | TABLE ASSY, REEL, S | |
| 255 | X-3727-772-5 | ARM ASSY, TENSION REGULATOR | |
| 256 | X-3727-797-1 | BAND ASSY, TENSION REGULATOR | |
| 257 | X-3272-786-1 | SHUTTLE (LEFT) ASSY | |
| 258 | X-3733-301-1 | ROLLER ASSY, GUIDE | |
| 259 | X-3942-897-1 | BASE ASSY, STABILIZER | |
| 260 | 1-543-647-11 | HEAD, FE | |
| 262 | 3-741-925-01 | RING, RETAINING | |
| 263 | 3-946-129-01 | B STABLIZER | |
| 264 | X-3743-517-1 | LEVER ASSY, RELEASE, C ROLLER | |
| 265 | 3-942-867-01 | NUT, AC HEIGHT ADJUSTMENT | |
| 266 | 3-942-866-01 | NUT (M3)(3X0.5), NYLON | |
| 267 | A-6761-129-C | HEAD BLOCK ASSY, ACE | |
| 268 | 3-946-148-01 | SPRING, TORSION | |
| 269 | 3-739-621-01 | SPRING, COMPRESSION | |
| 270 | X-3729-926-1 | BRAKE ASSY (2), T | |
| 271 | 3-736-745-01 | SPRING, TENSION | |
| 272 | X-3733-336-2 | BRAKE ASSY (2)AT, S | |
| 273 | 3-738-284-01 | SPRING, TENSION | |
| 274 | X-3727-791-2 | DRUM (BASE) ASSY | |
| 275 | 3-736-073-01 | SLIDER, POLYETHYLENE | |
| 276 | A-6747-267-A | ARM BLOCK ASSY (S), C ROLLER | |
| 277 | 3-736-733-02 | FLANGE, 7 GUIDE | |
| 278 | 3-736-730-01 | SLEEVE, #7 GUIDE | |
| 279 | 3-749-099-01 | SPRING (#7 GUIDE), COMPRESSION | |
| 280 | X-3727-787-1 | SHUTTLE (RIGHT) ASSY | |
| 281 | X-3727-788-1 | ROLLER ASSY, GUIDE, #2 | |
| 282 | 1-550-872-11 | DRUM ASSY, ROTARY UPPER (DZR-60-R) | |
| 283 | 2-643-205-01 | SCREW (PSW3X8) | |
| 284 | 3-736-047-01 | SPRING, TENSION (S SOFT) | |
| 285 | 3-733-389-01 | SPRING, TENSION (TENSION REGULATOR AT) | |
| 286 | 3-738-221-01 | SPRING, TENSION (MAIN BRKE 1) | |
| 287 | 3-738-220-01 | SPRING, TENSION (MAIN BRKE 2) | |
| M901 | 1-550-873-11 | LOWER DRUM ASSY DZL-60A-R | |

## 5-1-6. MECHANISM CHASSIS ASSEMBLY (3)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| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| 301 | 3-736-015-01 | WHEEL (CAM), WORM | |
| 302 | 3-736-158-01 | PLATE, SLIDE, PENDULUM | |
| 303 | A-6739-096-A | CHASSIS BLOCK ASSY, SUB | |
| 304 | 3-736-091-01 | PIN, SWITCH | |
| 305 | X-3729-924-1 | ARM ASSY, PENDULUM FUNCTION | |
| * 306 | 1-633-460-11 | CA-41 BOARD | |
| 307 | 3-669-595-00 | WASHER (2), STOPPER | |
| 308 | 3-736-013-01 | BELT, TIMING | |
| 309 | X-3727-782-1 | PULLEY ASSY | |
| 310 | 3-736-089-01 | SPRING, TENSION | |
| 311 | 3-749-796-11 | SCREW, TAPPING +BVTP WASHER | |
| 312 | X-3727-761-1 | ARM ASSY, ADJUSTMENT | |
| 314 | 1-564-013-41 | PIN, CONNECTOR 3P | |
| 315 | 3-736-744-01 | RETAINER, ROTOR | |
| 316 | 3-736-176-01 | GEAR, CAM | |
| 317 | 3-736-177-01 | PLATE, SLIDE, MODE | |
| 318 | 3-733-394-01 | GEAR, RVS RELAY | |
| 319 | 3-736-069-01 | RETAINER, SPRING | |
| 320 | 3-736-148-01 | GEAR (RIGHT), THREADING | |
| 321 | 3-736-092-01 | SPRING (RIGHT), TORSION | |
| 322 | X-3727-777-1 | ARM (RIGHT) ASSY, LOADING | |
| 323 | 3-736-147-01 | GEAR (LEFT), THREADING | |
| 324 | 3-736-040-01 | SPRING (LEFT), TORSION | |
| 325 | X-3727-778-1 | ARM (LEFT) ASSY, LOADING | |
| 326 | 3-736-142-01 | ARM, TENSION REGULATOR FUNCTION | |
| 327 | 3-736-140-01 | ARM, S TAKE-UP | |
| 328 | 3-733-396-01 | HOLDER, CAM GEAR | |
| 329 | 3-733-395-01 | GEAR (CAM), WORM | |
| 330 | 3-733-397-01 | ARM, BRAKE FUNCTION | |
| 331 | X-3727-769-1 | BRAKE ASSY, CAP | |
| 332 | 3-733-398-01 | PLATE, SLIDE, BRAKE | |
| 333 | 3-736-103-01 | PLATE, SLIDE, LIMITER | |
| 334 | 3-736-016-01 | ARM, LIMITER FUNCTION | |
| 335 | 3-736-170-01 | GEAR, RKB CAM | |
| 336 | 3-741-950-01 | SPRING PLATE, SC GROUND (AT) | |
| M902 | 8-835-489-01 | MOTOR, DC U-26K | |
| M903 | X-3733-302-1 | MOTOR ASSY, CAM | |
| S1 | 1-571-920-11 | SWITCH, ROTARY (CAM ENCODER) | |

## 5-2. ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL:Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F:nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u:μ, for example:
  uA..: μA..  uPA..: μPA..
  uPB..: μPB..  uPC..: μPC..  uPD..: μPD..
- CAPACITORS
  uF: μF
- COILS
  uH: μH

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board.

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| * | A-6754-660-A | CG-20 BOARD, COMPLETE | (E80B) |
| | | ********************** | |
| * | A-6754-662-A | CG-20 BOARD, COMPLETE | (E80NP) |
| | | ********************** | |
| * | A-6754-691-A | CG-20 BOARD, COMPLETE | |
| | | ********************** | |
| | | | (E80AP, IT, NC, UX, UY, VP)<br>(Ref. NO. 4,000 Series) |
| | | < CAPACITOR > | |
| C404 | 1-163-105-00 | CERAMIC CHIP 33PF 5% 50V | (E80B) |
| C405 | 1-163-107-00 | CERAMIC CHIP 39PF 5% 50V | (E80B) |
| C405 | 1-163-245-11 | CERAMIC CHIP 56PF 5% 50V | (E80AP, IT, NC, NP, UX, UY, VP) |
| C406 | 1-124-589-11 | ELECT 47uF 20% 16V | |
| C407 | 1-163-031-11 | CERAMIC CHIP 0.01uF 50V | |
| C408 | 1-163-031-11 | CERAMIC CHIP 0.01uF 50V | |
| C409 | 1-124-126-00 | ELECT 47uF 20% 10V | (E80B, NP) |
| C409 | 1-124-589-11 | ELECT 47uF 20% 16V | (E80AP, IT, NC, UX, UY, VP) |
| C410 | 1-163-227-11 | CERAMIC CHIP 10PF 0.5PF 50V | |
| C411 | 1-163-235-11 | CERAMIC CHIP 22PF 5% 50V | |
| C412 | 1-163-239-11 | CERAMIC CHIP 33PF 5% 50V | |
| C413 | 1-163-235-11 | CERAMIC CHIP 22PF 5% 50V | |
| C416 | 1-124-257-00 | ELECT 2.2uF 20% 50V | |
| C417 | 1-164-343-11 | CERAMIC CHIP 0.056uF 10% 25V | |
| C418 | 1-163-037-11 | CERAMIC CHIP 0.022uF 10% 25V | |
| C419 | 1-124-589-11 | ELECT 47uF 20% 16V | |
| C420 | 1-163-031-11 | CERAMIC CHIP 0.01uF 50V | |
| C421 | 1-163-031-11 | CERAMIC CHIP 0.01uF 50V | |
| C422 | 1-126-301-11 | ELECT 1uF 20% 50V | |
| C423 | 1-163-139-00 | CERAMIC CHIP 820PF 5% 50V | |
| C424 | 1-124-589-11 | ELECT 47uF 20% 16V | |
| C425 | 1-164-004-11 | CERAMIC CHIP 0.1uF 10% 25V | |
| C427 | 1-163-009-11 | CERAMIC CHIP 0.001uF 10% 50V | |
| C440 | 1-163-031-11 | CERAMIC CHIP 0.01uF 50V | |
| C451 | 1-163-105-00 | CERAMIC CHIP 33PF 5% 50V | |
| | | < CONNECTOR > | |
| * CN401 | 1-573-827-11 | CONNECTOR, BOARD TO BOARD 13P | |
| | | < DIODE > | |
| D402 | 8-719-801-48 | DIODE 1SS193 | |
| | | < IC > | |
| IC401 | 8-759-247-44 | IC MB90090PF-107-ER | |
| IC402 | 8-759-164-09 | IC LA7218M | |
| | | < JUMPER RESISTOR > | |
| JR401 | 1-216-296-00 | METAL CHIP 0 5% 1/8W | |
| JR404 | 1-216-295-00 | METAL CHIP 0 5% 1/10W | (E80AP, IT, NC, NP, UX, UY, VP) |
| | | < COIL > | |
| L401 | 1-408-982-11 | INDUCTOR 100uH | |
| L402 | 1-408-976-21 | INDUCTOR 33uH | (E80B) |
| L403 | 1-408-974-21 | INDUCTOR 22uH | |
| L404 | 1-408-982-11 | INDUCTOR 100uH | |
| | | < TRANSISTOR > | |
| Q404 | 8-729-216-22 | TRANSISTOR 2SA1162-G | |
| Q406 | 8-729-216-22 | TRANSISTOR 2SA1162-G | |
| Q405 | 8-729-422-27 | TRANSISTOR 2SD601A-Q | (E80B) |
| Q407 | 8-729-216-22 | TRANSISTOR 2SA1162-G | (E80B, NP) |
| Q408 | 8-729-422-27 | TRANSISTOR 2SD601A-Q | (E80B, NP) |
| | | < RESISTOR > | |
| R401 | 1-216-049-00 | METAL CHIP 1K 5% 1/10W | |
| R402 | 1-216-222-00 | METAL GLAZE 10K 5% 1/8W | (E80B) |
| R405 | 1-216-295-00 | METAL CHIP 0 5% 1/10W | |
| R406 | 1-216-295-00 | METAL CHIP 0 5% 1/10W | |
| R407 | 1-216-043-00 | METAL CHIP 560 5% 1/10W | |
| R408 | 1-216-101-00 | METAL CHIP 150K 5% 1/10W | |
| R409 | 1-216-063-00 | METAL CHIP 3.9K 5% 1/10W | |
| R410 | 1-216-043-00 | METAL CHIP 560 5% 1/10W | |
| R411 | 1-216-025-00 | METAL CHIP 100 5% 1/10W | |
| R414 | 1-216-081-00 | METAL CHIP 22K 5% 1/10W | |

| Ref. No. | Part No. | Description | | | | Remark |
|---|---|---|---|---|---|---|
| R415 | 1-216-053-00 | METAL CHIP | 1.5K | 5% | 1/10W | |
| R416 | 1-216-059-00 | METAL CHIP | 2.7K | 5% | 1/10W | |
| R417 | 1-216-033-00 | METAL CHIP | 220 | 5% | 1/10W | |
| R421 | 1-216-081-00 | METAL CHIP | 22K | 5% | 1/10W | (E80B, NP) |
| R422 | 1-216-049-00 | METAL CHIP | 1K | 5% | 1/10W | (E80B, NP) |
| R423 | 1-216-073-00 | METAL CHIP | 10K | 5% | 1/10W | |
| R424 | 1-216-025-00 | METAL CHIP | 100 | 5% | 1/10W | (E80B, NP) |

< VIBRATOR >

| | | |
|---|---|---|
| X401 | 1-577-289-11 | VIBRATOR, CRYSTAL (17.72MHz) |
| X402 | 1-577-165-11 | VIBLATOR, CERAMIC (500KHz) |

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* A-6781-275-A CP-65 BOARD, COMPLETE (E80B, NP)

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* A-6781-282-A CP-65 BOARD, COMPLETE (E80UX, UY)

**********************

(Ref. NO. 9,000 Series)

< CAPACITOR >

| | | | | | | |
|---|---|---|---|---|---|---|
| C902 | 1-126-154-11 | ELECT | 47uF | 20% | 6.3V | (E80UX, UY) |
| C903 | 1-126-154-11 | ELECT | 47uF | 20% | 6.3V | (E80UX, UY) |

< CONNECTOR >

| | | |
|---|---|---|
| CJ901 | 1-568-016-11 | SOCKET, PIN 21P (CANAL +) |
| * CN901 | 1-691-620-21 | SOCKET, CONNECTOR 8P (E80B, NP) |
| * CN902 | 1-691-621-11 | SOCKET, CONNECTOR 9P (E80B, NP) |
| * CN903 | 1-564-013-11 | PIN, CONNECTOR 3P (E80UX, UY) |
| CN904 | 1-564-013-21 | PIN, CONNECTOR 3P (E80UX, UY) |

< DIODE >

| | | | | |
|---|---|---|---|---|
| D901 | 8-719-108-12 | DIODE | RD9.1EW | (E80UX, UY) |
| D902 | 8-719-108-12 | DIODE | RD9.1EW | (E80UX, UY) |
| D903 | 8-719-108-12 | DIODE | RD9.1EW | (E80UX, UY) |

< RESISTOR >

| | | | | | | |
|---|---|---|---|---|---|---|
| R901 | 1-247-804-11 | CARBON | 75 | 5% | 1/4W | (E80UX, UY) |
| R902 | 1-249-413-11 | CARBON | 470 | 5% | 1/4W | F (E80UX, UY) |
| R903 | 1-249-413-11 | CARBON | 470 | 5% | 1/4W | F (E80UX, UY) |

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* A-6781-280-A DD-61 BOARD, COMPLETE

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(Ref. NO. 2,000 Series)

< CAPACITOR >

| Ref. No. | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| C550 | 1-124-927-11 | ELECT | 4.7uF | 20% | 100V |
| C551 | 1-124-927-11 | ELECT | 4.7uF | 20% | 100V |
| C552 | 1-124-927-11 | ELECT | 4.7uF | 20% | 100V |
| C553 | 1-124-907-11 | ELECT | 10uF | 20% | 50V |
| C554 | 1-124-907-11 | ELECT | 10uF | 20% | 50V |
| C555 | 1-163-038-00 | CERAMIC CHIP | 0.1uF | | 25V |
| C556 | 1-163-038-00 | CERAMIC CHIP | 0.1uF | | 25V |
| C557 | 1-163-038-00 | CERAMIC CHIP | 0.1uF | | 25V |
| C558 | 1-162-852-11 | CERAMIC | 0.15uF | 10% | 16V |
| C559 | 1-162-851-11 | CERAMIC | 0.1uF | 10% | 16V |
| C560 | 1-124-907-11 | ELECT | 10uF | 20% | 50V |
| C581 | 1-124-925-11 | ELECT | 2.2uF | 20% | 100V |
| C582 | 1-163-031-11 | CERAMIC CHIP | 0.01uF | | 50V |
| C583 | 1-126-233-11 | ELECT | 22uF | 20% | 50V |

< CONNECTOR >

| | | |
|---|---|---|
| CN501 | 1-564-726-11 | PIN HEADER, ANGLE 10P |
| CN502 | 1-573-824-11 | CONNECTOR, BOARD TO BOARD 10P |

< IC >

| | | | |
|---|---|---|---|
| IC501 | 8-759-420-83 | IC | AN3814K |
| IC503 | 8-759-998-92 | IC | LM393D |
| IC581 | 8-759-970-89 | IC | BA10358F |

< JUMPER RESISTOR >

| | | | | | |
|---|---|---|---|---|---|
| JR501 | 1-216-296-00 | METAL CHIP | 0 | 5% | 1/8W |
| JR502 | 1-216-296-00 | METAL CHIP | 0 | 5% | 1/8W |
| JR503 | 1-216-296-00 | METAL CHIP | 0 | 5% | 1/8W |
| JR504 | 1-216-296-00 | METAL CHIP | 0 | 5% | 1/8W |

< COIL >

| | | |
|---|---|---|
| L581 | 1-410-513-11 | INDUCTOR 22uH |

< RESISTOR >

| | | | | | | |
|---|---|---|---|---|---|---|
| R550 | 1-216-005-00 | METAL CHIP | 15 | 5% | 1/10W | |
| R551 | 1-216-005-00 | METAL CHIP | 15 | 5% | 1/10W | |
| R552 | 1-216-005-00 | METAL CHIP | 15 | 5% | 1/10W | |
| R553 | 1-216-051-00 | METAL CHIP | 1.2K | 5% | 1/10W | |
| R554 | 1-216-347-11 | METAL OXIDE | 0.68 | 5% | 1W | F |
| R555 | 1-216-089-91 | METAL GLAZE | 47K | 5% | 1/10W | |
| R556 | 1-216-075-00 | METAL CHIP | 12K | 5% | 1/10W | |
| R557 | 1-216-075-00 | METAL CHIP | 12K | 5% | 1/10W | |
| R558 | 1-216-222-00 | METAL GLAZE | 10K | 5% | 1/8W | |

| Ref. No. | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| R559 | 1-216-073-00 | METAL CHIP | 10K | 5% | 1/10W |
| R581 | 1-216-051-00 | METAL CHIP | 1.2K | 5% | 1/10W |
| R582 | 1-216-079-00 | METAL CHIP | 18K | 5% | 1/10W |
| R583 | 1-216-089-91 | METAL GLAZE | 47K | 5% | 1/10W |

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* A-6721-595-A HF-34 BOARD, COMPLETE

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(Ref. NO. 6,000 Series)

< CAPACITOR >

| Ref. No. | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| C101 | 1-124-907-11 | ELECT | 10uF | 20% | 50V |
| C102 | 1-124-907-11 | ELECT | 10uF | 20% | 50V |
| C103 | 1-124-927-11 | ELECT | 4.7uF | 20% | 100V |
| C104 | 1-124-927-11 | ELECT | 4.7uF | 20% | 100V |
| C105 | 1-124-126-00 | ELECT | 47uF | 20% | 10V |
| C106 | 1-124-126-00 | ELECT | 47uF | 20% | 10V |
| C107 | 1-124-126-00 | ELECT | 47uF | 20% | 10V |
| C108 | 1-126-962-11 | ELECT | 3.3uF | 20% | 50V |
| C109 | 1-126-962-11 | ELECT | 3.3uF | 20% | 50V |
| C110 | 1-126-962-11 | ELECT | 3.3uF | 20% | 50V |
| C111 | 1-126-962-11 | ELECT | 3.3uF | 20% | 50V |
| C112 | 1-126-233-11 | ELECT | 22uF | 20% | 50V |
| C113 | 1-126-233-11 | ELECT | 22uF | 20% | 50V |
| C114 | 1-124-252-00 | ELECT | 0.33uF | 20% | 50V |
| C115 | 1-124-443-00 | ELECT | 100uF | 20% | 10V |
| C116 | 1-124-443-00 | ELECT | 100uF | 20% | 10V |
| C117 | 1-124-034-51 | ELECT | 33uF | 20% | 16V |
| C118 | 1-137-372-11 | FILM | 0.022uF | 5% | 50V |
| C119 | 1-137-372-11 | FILM | 0.022uF | 5% | 50V |
| C120 | 1-137-370-11 | FILM | 0.01uF | 5% | 50V |
| C121 | 1-137-370-11 | FILM | 0.01uF | 5% | 50V |
| C122 | 1-137-367-11 | FILM | 0.0033uF | 5% | 50V |
| C123 | 1-137-367-11 | FILM | 0.0033uF | 5% | 50V |
| C124 | 1-137-364-11 | FILM | 0.001uF | 5% | 50V |
| C125 | 1-163-006-11 | CERAMIC CHIP | 560PF | 10% | 50V |
| C126 | 1-163-006-11 | CERAMIC CHIP | 560PF | 10% | 50V |
| C127 | 1-163-006-11 | CERAMIC CHIP | 560PF | 10% | 50V |
| C128 | 1-163-006-11 | CERAMIC CHIP | 560PF | 10% | 50V |
| C129 | 1-163-007-11 | CERAMIC CHIP | 680PF | 10% | 50V |
| C130 | 1-163-007-11 | CERAMIC CHIP | 680PF | 10% | 50V |
| C131 | 1-137-372-11 | FILM | 0.022uF | 5% | 50V |
| C132 | 1-137-372-11 | FILM | 0.022uF | 5% | 50V |
| C133 | 1-163-145-00 | CERAMIC CHIP | 0.0015uF | 5% | 50V |
| C134 | 1-163-145-00 | CERAMIC CHIP | 0.0015uF | 5% | 50V |
| C135 | 1-163-038-00 | CERAMIC CHIP | 0.1uF | | 25V |

< CONNECTOR >

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| * CN101 | 1-573-825-11 | CONNECTOR, BOARD TO BOARD 11P | |
| * CN102 | 1-573-825-11 | CONNECTOR, BOARD TO BOARD 11P | |
| * CN103 | 1-564-013-11 | PIN, CONNECTOR 3P | |

< DIODE >

| Ref. No. | Part No. | Description | | Remark |
|---|---|---|---|---|
| D101 | 8-719-404-46 | DIODE | MA110 | |

< IC >

| Ref. No. | Part No. | Description | | Remark |
|---|---|---|---|---|
| IC101 | 8-759-188-81 | IC | XLH7776K-VP | |

< TRANSISTOR >

| Ref. No. | Part No. | Description | | Remark |
|---|---|---|---|---|
| Q101 | 8-729-804-41 | TRANSISTOR | 2SB1122-S | |
| Q102 | 8-729-807-12 | TRANSISTOR | 2SD1802-S | |
| Q103 | 8-729-421-19 | TRANSISTOR | UN2213 | |
| Q104 | 8-729-421-19 | TRANSISTOR | UN2213 | |

< RESISTOR >

| Ref. No. | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| R101 | 1-216-675-11 | METAL CHIP | 10K | 0.5% | 1/10W |
| R102 | 1-216-678-11 | METAL CHIP | 13K | 0.5% | 1/10W |
| R103 | 1-216-083-00 | METAL CHIP | 27K | 5% | 1/10W |
| R104 | 1-216-081-00 | METAL CHIP | 22K | 5% | 1/10W |
| R105 | 1-216-089-91 | METAL GLAZE | 47K | 5% | 1/10W |
| R106 | 1-216-089-91 | METAL GLAZE | 47K | 5% | 1/10W |
| R107 | 1-216-083-00 | METAL CHIP | 27K | 5% | 1/10W |
| R108 | 1-216-075-00 | METAL CHIP | 12K | 5% | 1/10W |
| R109 | 1-216-075-00 | METAL CHIP | 12K | 5% | 1/10W |
| R110 | 1-216-057-00 | METAL CHIP | 2.2K | 5% | 1/10W |
| R111 | 1-216-105-00 | METAL CHIP | 220K | 5% | 1/10W |
| R112 | 1-216-105-00 | METAL CHIP | 220K | 5% | 1/10W |
| R113 | 1-216-109-00 | METAL CHIP | 330K | 5% | 1/10W |
| R114 | 1-216-069-00 | METAL CHIP | 6.8K | 5% | 1/10W |
| R115 | 1-216-069-00 | METAL CHIP | 6.8K | 5% | 1/10W |
| R116 | 1-216-077-00 | METAL CHIP | 15K | 5% | 1/10W |
| R118 | 1-216-129-00 | METAL CHIP | 2.2M | 5% | 1/10W |
| R119 | 1-216-107-00 | METAL CHIP | 270K | 5% | 1/10W |
| R120 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W |
| R121 | 1-216-107-00 | METAL CHIP | 270K | 5% | 1/10W |
| R123 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W |
| R124 | 1-216-066-00 | METAL CHIP | 5.1K | 5% | 1/10W |
| R125 | 1-216-049-00 | METAL CHIP | 1K | 5% | 1/10W |
| R130 | 1-216-049-00 | METAL CHIP | 1K | 5% | 1/10W |

< VARIABLE RESISTOR >

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| RV101 | 1-241-764-11 | RES, ADJ, CERMET 10K | |
| RV102 | 1-241-763-11 | RES, ADJ, CERMET 4.7K | |
| RV103 | 1-241-763-11 | RES, ADJ, CERMET 4.7K | |

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# IO-50

| Ref. No. | Part No. | Description | | | | Remark |
|---|---|---|---|---|---|---|
| * | A-6754-655-A | IO-50 BOARD, COMPLETE | | | | (E80UX,UY) |
| | | ********************** | | | | |
| * | A-6754-659-A | IO-50 BOARD, COMPLETE | | | | (E80B,NP) |
| | | ********************** | | | | |
| * | A-6754-661-A | IO-50 BOARD, COMPLETE | | | | (E80AP,IT,NC) |
| | | ********************** | | | | |
| * | A-6754-663-A | IO-50 BOARD, COMPLETE | | | | (E80VP) |
| | | ********************** | | | | |

(Ref.NO. 4,000 Series)

< CAPACITOR >

| | | | | | |
|---|---|---|---|---|---|
| C701 | 1-163-031-11 | CERAMIC CHIP | 0.01uF | | 50V |
| C702 | 1-124-126-00 | ELECT | 47uF | 20% | 10V |
| C703 | 1-163-031-11 | CERAMIC CHIP | 0.01uF | | 50V |
| C704 | 1-163-031-11 | CERAMIC CHIP | 0.01uF | | 50V |
| C707 | 1-124-126-00 | ELECT | 47uF | 20% | 10V |
| C709 | 1-163-009-11 | CERAMIC CHIP | 0.001uF | 10% | 50V |
| C751 | 1-163-031-11 | CERAMIC CHIP | 0.01uF | | 50V |
| C752 | 1-124-126-00 | ELECT | 47uF | 20% | 10V |
| C753 | 1-163-031-11 | CERAMIC CHIP | 0.01uF | | 50V |
| C757 | 1-124-126-00 | ELECT | 47uF | 20% | 10V |
| C901 | 1-163-031-11 | CERAMIC CHIP | 0.01uF | | 50V |
| C902 | 1-124-477-11 | ELECT | 47uF | 20% | 25V |
| C903 | 1-124-126-00 | ELECT | 47uF | 20% | 10V |
| C904 | 1-124-472-11 | ELECT | 470uF | 20% | 10V |

< CONNECTOR >

| | | | |
|---|---|---|---|
| CJ701 | 1-695-935-11 | CONNECTOR (SQUARE TYPE) 21P | (EURO-AV(LINE 1)) |
| CJ702 | 1-565-319-71 | JACK, PIN 2P (AUDIO OUT L/R) | |
| * CN701 | 1-691-407-11 | CONNECTOR, BOARD TO BOARD 10P | |
| CN702 | 1-568-672-11 | CONNECTOR, BOARD TO BOARD 12P | |
| * CN703 | 1-764-212-11 | CONNECTOR, BOARD TO BOARD 13P | |
| CN704 | 1-506-468-11 | PIN, CONNECTOR 3P | (E80UX,UY) |
| CN705 | 1-691-908-21 | CONNECTOR, WIRE TRAP 8P | (E80B,NP) |
| * CN706 | 1-695-520-11 | CONNECTOR, WIRE TRAP 9P | (E80B,NP) |
| CN708 | 1-506-468-11 | PIN, CONNECTOR 3P | (E80AP,B,IT,NC,NP,UX,UY) |
| CN708 | 1-506-469-11 | PIN, CONNECTOR 4P | (E80VP) |

< DIODE >

| | | | | |
|---|---|---|---|---|
| D701 | 8-719-911-19 | DIODE | 1SS119 | |
| D702 | 8-719-911-19 | DIODE | 1SS119 | |
| D703 | 8-719-911-19 | DIODE | 1SS119 | (E80B,NP) |
| D704 | 8-719-921-86 | DIODE | MTZJ-13 | (E80B,NP) |
| D901 | 8-719-109-97 | DIODE | RD6.8ES-B2 | (E80B,NP) |
| D902 | 8-719-109-97 | DIODE | RD6.8ES-B2 | (E80B,NP) |
| D903 | 8-719-109-97 | DIODE | RD6.8ES-B2 | (E80B,NP) |
| D904 | 8-719-109-97 | DIODE | RD6.8ES-B2 | (E80B,NP,UX,UY) |
| D905 | 8-719-109-97 | DIODE | RD6.8ES-B2 | |
| D906 | 8-719-109-97 | DIODE | RD6.8ES-B2 | |
| D907 | 8-719-109-97 | DIODE | RD6.8ES-B2 | |
| D908 | 8-719-109-97 | DIODE | RD6.8ES-B2 | (E80B,NP) |
| D909 | 8-719-921-86 | DIODE | MTZJ-13 | |
| D925 | 8-719-982-09 | DIODE | MTZJ-4.3 | |
| D951 | 8-719-108-12 | DIODE | RD9.1E-W | |
| D952 | 8-719-108-12 | DIODE | RD9.1E-W | |
| D953 | 8-719-108-12 | DIODE | RD9.1E-W | |
| D954 | 8-719-108-12 | DIODE | RD9.1E-W | |

< FILTER >

| | | | |
|---|---|---|---|
| FL701 | 1-236-071-11 | ENCAPSULATED COMPONENT | (E80VP) |
| FL702 | 1-236-071-11 | ENCAPSULATED COMPONENT | (E80VP) |
| FL703 | 1-236-071-11 | ENCAPSULATED COMPONENT | (E80VP) |
| FL704 | 1-236-071-11 | ENCAPSULATED COMPONENT | (E80VP) |
| FL705 | 1-236-071-11 | ENCAPSULATED COMPONENT | (E80VP) |
| FL751 | 1-236-071-11 | ENCAPSULATED COMPONENT | (E80VP) |
| FL752 | 1-236-071-11 | ENCAPSULATED COMPONENT | (E80VP) |
| FL753 | 1-236-071-11 | ENCAPSULATED COMPONENT | (E80VP) |
| FL754 | 1-236-071-11 | ENCAPSULATED COMPONENT | (E80VP) |
| FL755 | 1-236-071-11 | ENCAPSULATED COMPONENT | (E80VP) |

< IC >

| | | | | |
|---|---|---|---|---|
| IC701 | 8-759-009-06 | IC | MC14052BF | |
| IC702 | 8-759-924-46 | IC | BA4560F | |
| IC703 | 8-759-009-06 | IC | MC14052BF | |
| IC706 | 1-809-952-11 | IC | MODULE, CANAL PLUS BX8179 | (E80B,NP) |

< JUMPER RESISTOR >

| | | | | | | |
|---|---|---|---|---|---|---|
| JR701 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | (E80AP,B,IT,NC,NP,UX,UY) |
| JR702 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | (E80AP,B,IT,NC,NP,UX,UY) |
| JR703 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | (E80B,NP) |
| JR704 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | (E80B,NP) |
| JR705 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | (E80AP,B,IT,NC,NP,UX,UY) |
| JR706 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | |
| JR707 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | |
| JR713 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | (E80AP,IT,NC,UX,UY,VP) |
| JR714 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | |
| JR715 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | (E80B,NP) |
| JR717 | 1-216-296-00 | METAL CHIP | 0 | 5% | 1/8W | (E80B,NP) |
| JR718 | 1-216-296-00 | METAL CHIP | 0 | 5% | 1/8W | |

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| JR719 | 1-216-296-00 | METAL CHIP 0 5% 1/8W | (E80B, NP) |
| JR720 | 1-216-296-00 | METAL CHIP 0 5% 1/8W | |
| JR721 | 1-216-296-00 | METAL CHIP 0 5% 1/8W | |
| JR722 | 1-216-296-00 | METAL CHIP 0 5% 1/8W | |
| JR751 | 1-216-295-00 | METAL CHIP 0 5% 1/10W | (E80AP, B, IT, NC, NP, UX, UY) |
| JR752 | 1-216-295-00 | METAL CHIP 0 5% 1/10W | (E80AP, B, IT, NC, NP, UX, UY) |
| JR753 | 1-216-295-00 | METAL CHIP 0 5% 1/10W | (E80B, NP) |
| JR754 | 1-216-295-00 | METAL CHIP 0 5% 1/10W | (E80B, NP) |
| JR755 | 1-216-295-00 | METAL CHIP 0 5% 1/10W | (E80AP, B, IT, NC, NP, UX, UY) |
| JR756 | 1-216-295-00 | METAL CHIP 0 5% 1/10W | (E80AP, IT, NC, UX, UY, VP) |
| JR763 | 1-216-295-00 | METAL CHIP 0 5% 1/10W | (E80VP) |
| JR764 | 1-216-295-00 | METAL CHIP 0 5% 1/10W | (E80B, NP) |
| JR765 | 1-216-295-00 | METAL CHIP 0 5% 1/10W | (E80B, NP) |
| JR902 | 1-216-295-00 | METAL CHIP 0 5% 1/10W | (E80AP, IT, NC, UX, UY, VP) |

< COIL >

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| L701 | 1-408-421-00 | INDUCTOR 100uH | |
| L702 | 1-408-421-00 | INDUCTOR 100uH | |
| L703 | 1-408-421-00 | INDUCTOR 100uH | |

< TRANSISTOR >

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| Q703 | 8-729-424-56 | TRANSISTOR UN211L | |
| Q704 | 8-729-421-19 | TRANSISTOR UN2213 | |
| Q901 | 8-729-216-22 | TRANSISTOR 2SA1162-G | |
| Q902 | 8-729-216-22 | TRANSISTOR 2SA1162-G | (E80B, NP) |
| Q959 | 8-729-422-27 | TRANSISTOR 2SD601A-Q | (E80B, NP) |

< RESISTOR >

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| R701 | 1-216-081-00 | METAL CHIP 22K 5% 1/10W | |
| R702 | 1-216-085-00 | METAL CHIP 33K 5% 1/10W | |
| R703 | 1-249-433-11 | CARBON 22K 5% 1/4W | |
| R704 | 1-249-435-11 | CARBON 33K 5% 1/4W | |
| R705 | 1-216-081-00 | METAL CHIP 22K 5% 1/10W | (E80UX, UY) |
| R706 | 1-216-085-00 | METAL CHIP 33K 5% 1/10W | (E80UX, UY) |
| R707 | 1-216-081-00 | METAL CHIP 22K 5% 1/10W | (E80AP, IT, NC, UX, UY, VP) |
| R707 | 1-216-089-91 | METAL GLAZE 47K 5% 1/10W | (E80B, NP) |
| R708 | 1-216-083-00 | METAL CHIP 27K 5% 1/10W | (E80AP, IT, NC, UX, UY, VP) |
| R708 | 1-216-091-00 | METAL CHIP 56K 5% 1/10W | (E80B, NP) |
| R715 | 1-216-041-00 | METAL CHIP 470 5% 1/10W | |
| R719 | 1-216-041-00 | METAL CHIP 470 5% 1/10W | (E80B, NP) |
| R720 | 1-249-426-11 | CARBON 5.6K 5% 1/4W | |
| R721 | 1-216-075-00 | METAL CHIP 12K 5% 1/10W | (E80B, NP) |
| R722 | 1-216-075-00 | METAL CHIP 12K 5% 1/10W | (E80B, NP) |
| R723 | 1-216-089-91 | METAL GLAZE 47K 5% 1/10W | |
| R724 | 1-216-049-00 | METAL CHIP 1K 5% 1/10W | |
| R725 | 1-216-067-00 | METAL CHIP 5.6K 5% 1/10W | |
| R726 | 1-216-043-00 | METAL CHIP 560 5% 1/10W | |
| R728 | 1-216-085-00 | METAL CHIP 33K 5% 1/10W | |
| R729 | 1-216-043-00 | METAL CHIP 560 5% 1/10W | (E80B, NP) |
| R751 | 1-216-081-00 | METAL CHIP 22K 5% 1/10W | |
| R752 | 1-216-085-00 | METAL CHIP 33K 5% 1/10W | |
| R753 | 1-216-081-00 | METAL CHIP 22K 5% 1/10W | |
| R754 | 1-216-085-00 | METAL CHIP 33K 5% 1/10W | |
| R755 | 1-216-081-00 | METAL CHIP 22K 5% 1/10W | (E80UX, UY) |
| R756 | 1-216-085-00 | METAL CHIP 33K 5% 1/10W | (E80UX, UY) |
| R757 | 1-216-081-00 | METAL CHIP 22K 5% 1/10W | (E80AP, IT, NC, UX, UY, VP) |
| R757 | 1-216-089-91 | METAL GLAZE 47K 5% 1/10W | (E80B, NP) |
| R758 | 1-216-083-00 | METAL CHIP 27K 5% 1/10W | (E80AP, IT, NC, UX, UY, VP) |
| R758 | 1-216-091-00 | METAL CHIP 56K 5% 1/10W | (E80B, NP) |
| R765 | 1-216-041-00 | METAL CHIP 470 5% 1/10W | |
| R769 | 1-216-041-00 | METAL CHIP 470 5% 1/10W | (E80B, NP) |
| R770 | 1-249-426-11 | CARBON 5.6K 5% 1/4W | |
| R776 | 1-216-043-00 | METAL CHIP 560 5% 1/10W | |
| R778 | 1-216-085-00 | METAL CHIP 33K 5% 1/10W | |
| R779 | 1-216-043-00 | METAL CHIP 560 5% 1/10W | (E80B, NP) |
| R901 | 1-216-037-00 | METAL CHIP 330 5% 1/10W | |
| R903 | 1-216-031-00 | METAL CHIP 180 5% 1/10W | |
| R904 | 1-216-029-00 | METAL CHIP 150 5% 1/10W | |
| R905 | 1-216-021-00 | METAL CHIP 68 5% 1/10W | |
| R906 | 1-216-022-00 | METAL CHIP 75 5% 1/10W | (E80B, NP) |
| R907 | 1-249-417-11 | CARBON 1K 5% 1/4W F | (E80B, NP) |
| R908 | 1-216-022-00 | METAL CHIP 75 5% 1/10W | (E80B, NC, NP) |
| R909 | 1-216-049-00 | METAL CHIP 1K 5% 1/10W | (E80B, NP) |
| R957 | 1-247-807-31 | CARBON 100 5% 1/4W | (E80B, NP) |
| R958 | 1-247-807-31 | CARBON 100 5% 1/4W | (E80B, NP) |
| R959 | 1-247-807-31 | CARBON 100 5% 1/4W | (E80B, NP) |

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* A-6782-270-A MA-181 BOARD, COMPLETE (E80UX, UY)

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* A-6782-271-A MA-181 BOARD, COMPLETE (E80NP)

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* A-6782-274-A MA-181 BOARD, COMPLETE (E80B)

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* A-6782-276-A MA-181 BOARD, COMPLETE (E80AP, IT, NC, VP)

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(Ref. NO. 2,000 Series)

# MA-181

< CAPACITOR >

| Ref. No. | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| C001 | 1-161-494-00 | CERAMIC | 0.022uF | | 25V |
| C002 | 1-161-494-00 | CERAMIC | 0.022uF | | 25V |
| C003 | 1-124-261-00 | ELECT | 10uF | 20% | 50V |
| C004 | 1-162-306-11 | CERAMIC | 0.01uF | 20% | 16V |
| C006 | 1-124-589-11 | ELECT | 47uF | 20% | 16V |
| C008 | 1-164-159-11 | CERAMIC | 0.1uF | | 50V |
| C009 | 1-164-159-11 | CERAMIC | 0.1uF | | 50V |
| C022 | 1-162-306-11 | CERAMIC | 0.01uF | 20% | 16V |
| C025 | 1-162-294-31 | CERAMIC | 0.001uF | 10% | 50V |
| C026 | 1-162-294-31 | CERAMIC | 0.001uF | 10% | 50V |
| C101 | 1-162-306-11 | CERAMIC | 0.01uF | 20% | 16V |
| C102 | 1-124-126-00 | ELECT | 47uF | 20% | 10V |
| C103 | 1-162-849-11 | CERAMIC | 0.068uF | 10% | 16V |
| C104 | 1-126-233-11 | ELECT | 22uF | 20% | 50V |
| C105 | 1-124-443-00 | ELECT | 100uF | 20% | 10V |
| C106 | 1-162-294-31 | CERAMIC | 0.001uF | 10% | 50V |
| C107 | 1-162-835-11 | CERAMIC | 0.0047uF | 10% | 16V |
| C108 | 1-164-159-11 | CERAMIC | 0.1uF | | 50V |
| C109 | 1-124-925-11 | ELECT | 2.2uF | 20% | 100V |
| C201 | 1-162-306-11 | CERAMIC | 0.01uF | 20% | 16V |
| C202 | 1-124-589-11 | ELECT | 47uF | 20% | 16V<br>(E80B, UX, UY) |
| C202 | 1-124-261-00 | ELECT | 10uF | 20% | 50V<br>(E80AP, IT, NC, NP, VP) |
| C203 | 1-126-101-11 | ELECT | 100uF | 20% | 16V |
| C204 | 1-137-399-11 | FILM | 0.1uF | 5% | 50V |
| C205 | 1-162-306-11 | CERAMIC | 0.01uF | 20% | 16V |
| C206 | 1-126-233-11 | ELECT | 22uF | 20% | 50V |
| C207 | 1-137-372-11 | FILM | 0.022uF | 5% | 50V |
| C210 | 1-126-176-11 | ELECT | 220uF | 20% | 10V |
| C211 | 1-162-205-31 | CERAMIC | 18PF | 5% | 50V |
| C212 | 1-162-205-31 | CERAMIC | 18PF | 5% | 50V |
| C213 | 1-164-159-11 | CERAMIC | 0.1uF | | 50V |
| C214 | 1-162-294-31 | CERAMIC | 0.001uF | 10% | 50V |
| C215 | 1-161-057-00 | CERAMIC | 0.033uF | 10% | 50V |
| C216 | 1-164-159-11 | CERAMIC | 0.1uF | | 50V |
| C299 | 1-162-282-31 | CERAMIC | 100PF | 10% | 50V |
| C351 | 1-124-907-11 | ELECT | 10uF | 20% | 50V |
| C352 | 1-124-907-11 | ELECT | 10uF | 20% | 50V |
| C353 | 1-124-261-00 | ELECT | 10uF | 20% | 50V<br>(E80UX, UY) |
| C354 | 1-164-159-11 | CERAMIC | 0.1uF | | 50V<br>(E80UX, UY) |
| C355 | 1-124-261-00 | ELECT | 10uF | 20% | 50V<br>(E80UX, UY) |
| C356 | 1-124-261-00 | ELECT | 10uF | 20% | 50V |
| C361 | 1-162-282-31 | CERAMIC | 100PF | 10% | 50V |
| C362 | 1-162-282-31 | CERAMIC | 100PF | 10% | 50V |
| C364 | 1-162-306-11 | CERAMIC | 0.01uF | 20% | 16V<br>(E80UX, UY) |
| C366 | 1-162-282-31 | CERAMIC | 100PF | 10% | 50V |
| C401 | 1-164-084-11 | CERAMIC | 820PF | 10% | 50V |
| C402 | 1-164-092-11 | CERAMIC | 0.0033uF | 10% | 25V |
| C403 | 1-124-902-00 | ELECT | 0.47uF | 20% | 50V |
| C404 | 1-124-907-11 | ELECT | 10uF | 20% | 50V |
| C405 | 1-137-370-11 | FILM | 0.01uF | 5% | 50V |
| C406 | 1-164-159-11 | CERAMIC | 0.1uF | | 50V |
| C407 | 1-124-903-11 | ELECT | 1uF | 20% | 50V |
| C409 | 1-164-159-11 | CERAMIC | 0.1uF | | 50V |
| C410 | 1-124-907-11 | ELECT | 10uF | 20% | 50V |
| C411 | 1-124-252-00 | ELECT | 0.33uF | 20% | 50V |
| C414 | 1-130-488-00 | MYLAR | 0.027uF | 5% | 50V |
| C415 | 1-124-903-11 | ELECT | 1uF | 20% | 50V |
| C416 | 1-130-486-00 | MYLAR | 0.018uF | 10% | 50V |
| C417 | 1-124-034-51 | ELECT | 33uF | 20% | 16V |
| C418 | 1-124-034-51 | ELECT | 33uF | 20% | 16V |
| C421 | 1-162-290-31 | CERAMIC | 470PF | 10% | 50V |
| C852 | 1-162-306-11 | CERAMIC | 0.01uF | 20% | 16V |
| C853 | 1-162-306-11 | CERAMIC | 0.01uF | 20% | 16V |
| C854 | 1-164-087-11 | CERAMIC | 0.0015uF | 10% | 50V |
| C855 | 1-164-087-11 | CERAMIC | 0.0015uF | 10% | 50V |
| C856 | 1-137-612-11 | FILM | 0.0068uF | 5% | 100V |
| C857 | 1-104-697-11 | FILM | 0.047uF | 5% | 100V |
| C858 | 1-104-695-11 | FILM | 330PF | 5% | 100V |
| C859 | 1-126-101-11 | ELECT | 100uF | 20% | 16V |
| C860 | 1-126-101-11 | ELECT | 100uF | 20% | 16V |

< CONNECTOR >

| Ref. No. | Part No. | Description |
|---|---|---|
| CN002 | 1-569-335-11 | CONNECTOR, BOARD TO BOARD 9P |
| CN003 | 1-691-643-11 | CONNECTOR, BOARD TO BOARD |
| CN005 | 1-506-468-11 | PIN, CONNECTOR 3P |
| CN006 | 1-569-333-11 | CONNECTOR, BOARD TO BOARD 3P |
| CN101 | 1-506-468-11 | PIN, CONNECTOR 3P |
| CN201 | 1-573-842-11 | CONNECTOR, BOARD TO BOARD 10P |
| CN301 | 1-569-341-11 | CONNECTOR, BOARD TO BOARD 19P |
| CN302 | 1-569-341-11 | CONNECTOR, BOARD TO BOARD 19P |
| CN303 | 1-573-846-11 | CONNECTOR, BOARD TO BOARD 14P |
| CN304 | 1-573-852-11 | CONNECTOR, BOARD TO BOARD 20P |
| * CN307 | 1-560-891-00 | PIN, CONNECTOR 3P (E80UX, UY) |
| CN402 | 1-695-821-11 | CONNECTOR, BOARD TO BOARD 12P |
| * CN405 | 1-573-843-11 | CONNECTOR, BOARD TO BOARD 11P |
| * CN406 | 1-573-843-11 | CONNECTOR, BOARD TO BOARD 11P |
| * CN801 | 1-691-409-11 | CONNECTOR, BOARD TO BOARD 10P |
| * CN802 | 1-764-210-11 | CONNECTOR, BOARD TO BOARD 12P |
| * CN803 | 1-764-211-11 | CONNECTOR, BOARD TO BOARD 13P |
| CN854 | 1-506-469-11 | PIN, CONNECTOR 4P |

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| CN855 | 1-506-468-11 | PIN, CONNECTOR 3P | |
| * CN857 | 1-560-891-00 | PIN, CONNECTOR 3P | |
| | | < DIODE > | |
| D001 | 8-719-985-00 | DIODE GL451VS1 | |
| D004 | 8-719-109-93 | DIODE RD6.2ES-B2 | |
| D005 | 8-719-109-93 | DIODE RD6.2ES-B2 | |
| D006 | 8-719-109-93 | DIODE RD6.2ES-B2 | |
| D007 | 8-719-109-93 | DIODE RD6.2ES-B2 | |
| D201 | 8-719-911-19 | DIODE 1SS119 | |
| D202 | 8-719-109-74 | DIODE RD4.3ES-B1 | |
| D203 | 8-719-109-81 | DIODE RD4.7ES-B2 | |
| D204 | 8-719-200-82 | DIODE 11ES2 | |
| D206 | 8-719-911-19 | DIODE 1SS119 | |
| D301 | 8-719-911-19 | DIODE 1SS119 (E80B) | |
| D302 | 8-719-911-19 | DIODE 1SS119 (E80B) | |
| D351 | 8-719-911-19 | DIODE 1SS119 (E80UX, UY) | |
| D352 | 8-719-911-19 | DIODE 1SS119 (E80UX, UY) | |
| D353 | 8-719-911-19 | DIODE 1SS119 | |
| D401 | 8-719-911-19 | DIODE 1SS119 | |
| D402 | 1-249-417-11 | CARBON 1K 5% 1/4W F | |
| D403 | 8-719-911-19 | DIODE 1SS119 | |
| | | < IC > | |
| IC002 | 8-759-912-77 | IC uPC324C | |
| IC101 | 8-759-246-14 | IC TA8823N | |
| ⚠IC201 | 8-759-983-45 | IC BA6238A | |
| IC202 | 8-759-503-91 | IC TL082ACP | |
| IC203 | 8-752-848-85 | IC CXP80732-011Q | |
| IC303 | 8-759-198-39 | IC HD49783 | |
| IC305 | 8-759-927-56 | IC BA7021 | |
| IC306 | 8-759-710-40 | IC NJM2234D (E80UX, UY) | |
| IC401 | 8-759-089-82 | IC BA7790LS | |
| | | < COIL > | |
| L101 | 1-414-189-31 | INDUCTOR 100uH | |
| L201 | 1-414-185-41 | INDUCTOR 22uH | |
| L202 | 1-414-183-41 | INDUCTOR 10uH | |
| L351 | 1-410-509-11 | INDUCTOR 10uH (E80UX, UY) | |
| L352 | 1-410-509-11 | INDUCTOR 10uH | |
| L401 | 1-410-071-11 | INDUCTOR 10mH | |
| L402 | 1-414-183-41 | INDUCTOR 10uH | |
| L852 | 1-410-687-11 | INDUCTOR 1.2mH | |
| L853 | 1-410-687-11 | INDUCTOR 1.2mH | |
| | | < PHOTO INTERRUPTER > | |
| PH001 | 8-759-144-33 | IC PS6002 | |
| PH002 | 8-759-144-33 | IC PS6002 | |

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| | | < IC LINK > | |
| PS201 | 1-532-685-00 | LINK, IC | |
| PS851 | 1-532-679-00 | LINK, IC | |
| | | < TRANSISTOR > | |
| Q001 | 8-729-926-31 | TRANSISTOR PT483F1S | |
| Q002 | 8-729-926-31 | TRANSISTOR PT483F1S | |
| Q201 | 8-729-422-71 | TRANSISTOR UN411L | |
| Q301 | 8-729-900-89 | TRANSISTOR DTC144ES (E80B) | |
| Q302 | 8-729-900-65 | TRANSISTOR DTA144ES | |
| Q306 | 8-729-900-65 | TRANSISTOR DTA144ES | |
| Q851 | 8-729-012-31 | TRANSISTOR 2SC4040-TL2-Q | |
| Q852 | 8-729-012-31 | TRANSISTOR 2SC4040-TL2-Q | |
| Q853 | 8-729-119-78 | TRANSISTOR 2SC2785-HFE | |
| Q854 | 8-729-422-57 | TRANSISTOR UN4111 | |
| Q855 | 8-729-900-65 | TRANSISTOR DTA144ES | |
| | | < RESISTOR > | |
| R001 | 1-249-423-11 | CARBON 3.3K 5% 1/4W F | |
| R002 | 1-249-423-11 | CARBON 3.3K 5% 1/4W F | |
| R003 | 1-249-426-11 | CARBON 5.6K 5% 1/4W | |
| R004 | 1-249-426-11 | CARBON 5.6K 5% 1/4W | |
| R005 | 1-249-415-11 | CARBON 680 5% 1/4W F | |
| R006 | 1-249-441-11 | CARBON 100K 5% 1/4W | |
| R007 | 1-249-441-11 | CARBON 100K 5% 1/4W | |
| R008 | 1-249-425-11 | CARBON 4.7K 5% 1/4W F | |
| R009 | 1-249-408-11 | CARBON 180 5% 1/4W F | |
| R010 | 1-249-422-11 | CARBON 2.7K 5% 1/4W F | |
| R011 | 1-249-437-11 | CARBON 47K 5% 1/4W | |
| R012 | 1-249-421-11 | CARBON 2.2K 5% 1/4W F | |
| R015 | 1-249-437-11 | CARBON 47K 5% 1/4W | |
| R016 | 1-249-421-11 | CARBON 2.2K 5% 1/4W F | |
| R017 | 1-249-429-11 | CARBON 10K 5% 1/4W | |
| R018 | 1-249-429-11 | CARBON 10K 5% 1/4W | |
| R019 | 1-249-429-11 | CARBON 10K 5% 1/4W | |
| R020 | 1-249-429-11 | CARBON 10K 5% 1/4W | |
| R023 | 1-249-414-11 | CARBON 560 5% 1/4W F | |
| R024 | 1-249-437-11 | CARBON 47K 5% 1/4W | |
| R025 | 1-249-437-11 | CARBON 47K 5% 1/4W | |
| R101 | 1-247-901-11 | CARBON 820K 5% 1/4W | |
| R102 | 1-249-439-11 | CARBON 68K 5% 1/4W | |
| R103 | 1-249-441-11 | CARBON 100K 5% 1/4W | |
| R104 | 1-249-441-11 | CARBON 100K 5% 1/4W | |
| R105 | 1-249-435-11 | CARBON 33K 5% 1/4W | |
| R106 | 1-249-425-11 | CARBON 4.7K 5% 1/4W F | |
| R107 | 1-249-411-11 | CARBON 330 5% 1/4W | |
| R108 | 1-247-807-31 | CARBON 100 5% 1/4W | |
| R109 | 1-215-429-00 | METAL 2.2K 1% 1/6W | |

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

# MA-181

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| R110 | 1-249-417-11 | CARBON 1K 5% 1/4W | F |
| R126 | 1-215-429-00 | METAL 2.2K 1% 1/6W | |
| R203 | 1-249-429-11 | CARBON 10K 5% 1/4W | |
| R204 | 1-249-429-11 | CARBON 10K 5% 1/4W | |
| R205 | 1-249-429-11 | CARBON 10K 5% 1/4W | |
| R206 | 1-249-436-11 | CARBON 39K 5% 1/4W | |
| R208 | 1-249-417-11 | CARBON 1K 5% 1/4W | F |
| R209 | 1-247-874-11 | CARBON 62K 5% 1/4W | |
| R210 | 1-249-431-11 | CARBON 15K 5% 1/4W | |
| R211 | 1-249-422-11 | CARBON 2.7K 5% 1/4W | F |
| R212 | 1-249-421-11 | CARBON 2.2K 5% 1/4W | F |
| R213 | 1-249-421-11 | CARBON 2.2K 5% 1/4W | F |
| R214 | 1-247-885-00 | CARBON 180K 5% 1/4W | |
| R216 | 1-249-417-11 | CARBON 1K 5% 1/4W | F |
| R217 | 1-249-433-11 | CARBON 22K 5% 1/4W | |
| R218 | 1-249-436-11 | CARBON 39K 5% 1/4W | |
| R219 | 1-249-433-11 | CARBON 22K 5% 1/4W | |
| R220 | 1-249-425-11 | CARBON 4.7K 5% 1/4W | F |
| R222 | 1-249-422-11 | CARBON 2.7K 5% 1/4W | F |
| R224 | 1-249-421-11 | CARBON 2.2K 5% 1/4W | F |
| R225 | 1-249-437-11 | CARBON 47K 5% 1/4W | |
| R226 | 1-249-437-11 | CARBON 47K 5% 1/4W | |
| R301 | 1-249-429-11 | CARBON 10K 5% 1/4W | (E80B) |
| R311 | 1-249-429-11 | CARBON 10K 5% 1/4W | |
| R351 | 1-249-429-11 | CARBON 10K 5% 1/4W | (E80UX, UY) |
| R355 | 1-249-429-11 | CARBON 10K 5% 1/4W | |
| R356 | 1-249-429-11 | CARBON 10K 5% 1/4W | |
| R359 | 1-249-425-11 | CARBON 4.7K 5% 1/4W | F |
| R362 | 1-249-417-11 | CARBON 1K 5% 1/4W | F |
| R363 | 1-249-417-11 | CARBON 1K 5% 1/4W | F |
| R364 | 1-249-434-11 | CARBON 27K 5% 1/4W | |
| R365 | 1-249-427-11 | CARBON 6.8K 5% 1/4W | F |
| R366 | 1-249-427-11 | CARBON 6.8K 5% 1/4W | F |
| R367 | 1-249-427-11 | CARBON 6.8K 5% 1/4W | F |
| R368 | 1-249-427-11 | CARBON 6.8K 5% 1/4W | F |
| R369 | 1-249-423-11 | CARBON 3.3K 5% 1/4W | F |
| R370 | 1-249-423-11 | CARBON 3.3K 5% 1/4W | F |
| R371 | 1-249-423-11 | CARBON 3.3K 5% 1/4W | F |
| R372 | 1-249-427-11 | CARBON 6.8K 5% 1/4W | F |
| R373 | 1-249-425-11 | CARBON 4.7K 5% 1/4W | F |
| R374 | 1-249-424-11 | CARBON 3.9K 5% 1/4W | F |
| R375 | 1-249-401-11 | CARBON 47 5% 1/4W | F |
| R376 | 1-249-401-11 | CARBON 47 5% 1/4W | F |
| R377 | 1-249-401-11 | CARBON 47 5% 1/4W | F (E80UX, UY) |
| R378 | 1-247-807-31 | CARBON 100 5% 1/4W | (E80UX, UY) |
| R401 | 1-249-441-11 | CARBON 100K 5% 1/4W | |
| R402 | 1-249-438-11 | CARBON 56K 5% 1/4W | |
| R403 | 1-249-409-11 | CARBON 220 5% 1/4W | F |
| R404 | 1-247-891-00 | CARBON 330K 5% 1/4W | |
| R405 | 1-249-430-11 | CARBON 12K 5% 1/4W | |
| R406 | 1-249-426-11 | CARBON 5.6K 5% 1/4W | |
| R407 | 1-249-435-11 | CARBON 33K 5% 1/4W | |
| R408 | 1-249-432-11 | CARBON 18K 5% 1/4W | |
| R409 | 1-259-880-11 | CARBON 2.2M 5% 1/4W | |
| R410 | 1-249-429-11 | CARBON 10K 5% 1/4W | |
| R411 | 1-249-435-11 | CARBON 33K 5% 1/4W | |
| R418 | 1-249-417-11 | CARBON 1K 5% 1/4W | F |
| R419 | 1-247-864-11 | CARBON 24K 5% 1/4W | |
| R420 | 1-249-410-11 | CARBON 270 5% 1/4W | F |
| R421 | 1-249-417-11 | CARBON 1K 5% 1/4W | F |
| R422 | 1-249-426-11 | CARBON 5.6K 5% 1/4W | |
| R423 | 1-249-437-11 | CARBON 47K 5% 1/4W | |
| R424 | 1-249-434-11 | CARBON 27K 5% 1/4W | |
| R425 | 1-249-441-11 | CARBON 100K 5% 1/4W | |
| R426 | 1-249-434-11 | CARBON 27K 5% 1/4W | |
| R854 | 1-215-439-00 | METAL 5.6K 1% 1/6W | |
| R855 | 1-215-423-00 | METAL 1.2K 1% 1/6W | |
| R858 | 1-249-437-11 | CARBON 47K 5% 1/4W | |
| R859 | 1-249-429-11 | CARBON 10K 5% 1/4W | |
| R860 | 1-249-435-11 | CARBON 33K 5% 1/4W | |
| R861 | 1-249-440-11 | CARBON 82K 5% 1/4W | |
| R866 | 1-249-393-11 | CARBON 10 5% 1/4W | F |
| R868 | 1-249-433-11 | CARBON 22K 5% 1/4W | |
| R869 | 1-249-395-11 | CARBON 15 5% 1/4W | F |
| R870 | 1-249-434-11 | CARBON 27K 5% 1/4W | |
| R871 | 1-249-394-11 | CARBON 12 5% 1/6W | F |
| R898 | 1-249-417-11 | CARBON 1K 5% 1/4W | F |
| R899 | 1-249-417-11 | CARBON 1K 5% 1/4W | F |
| | | < VARIABLE RESISTOR > | |
| RV201 | 1-238-019-11 | RES, ADJ, CARBON 47K | |
| RV202 | 1-238-019-11 | RES, ADJ, CARBON 47K | |
| RV851 | 1-241-767-21 | RES, ADJ, CARBON 100K | |
| | | < SWITCH > | |
| S001 | 1-570-953-11 | SWITCH, PUSH (1 KEY) | |
| S002 | 1-570-953-11 | SWITCH, PUSH (1 KEY) | |
| | | < TRANSFORMER > | |
| T851 | 1-423-413-11 | TRANSFORMER, BIAS OSCILLATION | |
| T852 | 1-423-415-11 | TRANSFORMER, BIAS OSCILLATION | |
| | | < VIBRATOR > | |
| X201 | 1-578-774-11 | VIBRATOR, CRYSTAL (12MHz) | |

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| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| * | A-6721-591-A | MF-242 BOARD, COMPLETE (E80B)<br>*********************** | |
| * | A-6721-593-A | MF-242 BOARD, COMPLETE<br>***********************<br>(E80AP, IT, NC, NP, UX, UY, VP)<br>(Ref. NO. 5,000 Series) | |
| * | 3-957-314-11 | HOLDER, LCD | |
| | 3-957-327-01 | RIVET, PUSH | |
| | 3-957-338-01 | ILLUMINATOR | |
| | 3-697-607-01 | HOLDER, LED | |

< CAPACITOR >

| Ref. No. | Part No. | Description | | | |
|---|---|---|---|---|---|
| C301 | 1-126-157-11 | ELECT | 10uF | 20% | 16V |
| C302 | 1-163-031-11 | CERAMIC CHIP | 0.01uF | | 50V |
| C303 | 1-164-004-11 | CERAMIC CHIP | 0.1uF | 10% | 25V |
| C304 | 1-164-004-11 | CERAMIC CHIP | 0.1uF | 10% | 25V |
| C305 | 1-163-141-00 | CERAMIC CHIP | 0.001uF | 5% | 50V |
| C306 | 1-163-031-11 | CERAMIC CHIP | 0.01uF | | 50V |
| C320 | 1-126-176-11 | ELECT | 220uF | 20% | 10V |

< CONNECTOR >

| Ref. No. | Part No. | Description |
|---|---|---|
| * CN301 | 1-750-192-21 | CONNECTOR, BOARD TO BOARD 22P |
| * CN303 | 1-695-329-31 | PIN, CONNECTOR (PC BOARD) 6P |
| * CN304 | 1-564-014-51 | PIN, CONNECTOR 4P |

< DIODE >

| Ref. No. | Part No. | Description |
|---|---|---|
| D301 | 8-719-940-XX | DIODE SLR-34VCA49 (REC) |
| D302 | 8-719-940-XX | DIODE SLR-34VCA49 (TIMER) |
| D303 | 8-719-946-30 | LED SLR34DC3 (PAUSE) |
| D304 | 8-719-812-32 | LED TLY123 (HI-SPEED REWIND) |
| D305 | 8-719-801-78 | DIODE 1SS184 |
| D306 | 8-719-109-97 | DIODE RD6.8ES-B2 |
| D307 | 8-719-109-97 | DIODE RD6.8ES-B2 |
| D308 | 8-719-109-97 | DIODE RD6.8ES-B2 |
| D309 | 8-719-109-97 | DIODE RD6.8ES-B2 |
| D310 | 8-719-109-97 | DIODE RD6.8ES-B2 |

< IC >

| Ref. No. | Part No. | Description |
|---|---|---|
| IC301 | 8-759-249-78 | IC LC75850E |

< JUMPER RESISTOR >

| Ref. No. | Part No. | Description | | | |
|---|---|---|---|---|---|
| JR302 | 1-216-296-00 | METAL CHIP | 0 | 5% | 1/8W |
| JR303 | 1-216-296-00 | METAL CHIP | 0 | 5% | 1/8W |

< COIL >

| Ref. No. | Part No. | Description |
|---|---|---|
| L301 | 1-408-401-00 | INDUCTOR 2.2uH |
| L302 | 1-410-509-11 | INDUCTOR 10uH |

< CRYSTAL LIQUID >

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| LC301 | 1-810-354-11 | DISPLAY PANEL, LIQUID CRYSTAL | (EXCEPT E80B) |
| LC301 | 1-810-355-11 | DISPLAY PANEL, LIQUID CRYSTAL | (E80B) |

< TRANSISTOR >

| Ref. No. | Part No. | Description | |
|---|---|---|---|
| Q301 | 8-729-421-19 | TRANSISTOR | UN2213 |
| Q302 | 8-729-421-19 | TRANSISTOR | UN2213 |
| Q303 | 8-729-421-19 | TRANSISTOR | UN2213 |
| Q304 | 8-729-421-19 | TRANSISTOR | UN2213 |
| Q305 | 8-729-421-19 | TRANSISTOR | UN2213 |
| Q307 | 8-729-216-22 | TRANSISTOR | 2SA1162 |

< RESISTOR >

| Ref. No. | Part No. | Description | | | | Remark |
|---|---|---|---|---|---|---|
| R301 | 1-249-421-11 | CARBON | 2.2K | 5% | 1/4W | F |
| R302 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | |
| R303 | 1-216-073-00 | METAL CHIP | 10K | 5% | 1/10W | |
| R304 | 1-216-035-00 | METAL CHIP | 270 | 5% | 1/10W | |
| R305 | 1-216-035-00 | METAL CHIP | 270 | 5% | 1/10W | |
| R306 | 1-216-037-00 | METAL CHIP | 330 | 5% | 1/10W | |
| R307 | 1-249-408-11 | CARBON | 180 | 5% | 1/4W | F |
| R308 | 1-216-031-00 | METAL CHIP | 180 | 5% | 1/10W | |
| R309 | 1-216-031-00 | METAL CHIP | 180 | 5% | 1/10W | |
| R310 | 1-216-031-00 | METAL CHIP | 180 | 5% | 1/10W | |
| R311 | 1-216-031-00 | METAL CHIP | 180 | 5% | 1/10W | |
| R312 | 1-216-057-00 | METAL CHIP | 2.2K | 5% | 1/10W | |
| R313 | 1-216-057-00 | METAL CHIP | 2.2K | 5% | 1/10W | |
| R317 | 1-216-073-00 | METAL CHIP | 10K | 5% | 1/10W | |
| R318 | 1-216-089-91 | METAL GLAZE | 47K | 5% | 1/10W | |
| R319 | 1-216-013-00 | METAL CHIP | 33 | 5% | 1/10W | |
| R320 | 1-216-013-00 | METAL CHIP | 33 | 5% | 1/10W | |
| R321 | 1-216-262-00 | METAL GLAZE | 470K | 5% | 1/8W | |
| R322 | 1-216-113-00 | METAL CHIP | 470K | 5% | 1/10W | |
| R323 | 1-216-262-00 | METAL GLAZE | 470K | 5% | 1/8W | |
| R324 | 1-216-057-00 | METAL CHIP | 2.2K | 5% | 1/10W | |
| R325 | 1-216-065-00 | METAL CHIP | 4.7K | 5% | 1/10W | |

< SWITCH >

| Ref. No. | Part No. | Description |
|---|---|---|
| S301 | 1-571-977-11 | SWITCH, TACTIL (PAUSE) |
| S302 | 1-571-977-11 | SWITCH, TACTIL (HI-SPEED REWIND) |
| S303 | 1-692-726-11 | SWITCH, ROTARY (LED) (PLAY/STOP/REW/FF) |

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# MF-243 PD-37

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| * | A-6720-592-A | MF-243 BOARD, COMPLETE<br>********************** | (E80AP, B, IT, NC, NP, UX, UY) |
| * | A-6720-596-A | MF-243 BOARD, COMPLETE (E80VP)<br>********************** | (Ref. NO. 5,000 Series) |

< CAPACITOR >

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| C602 | 1-163-117-00 | CERAMIC CHIP 100PF 5% 50V | (E80VP) |
| C604 | 1-163-117-00 | CERAMIC CHIP 100PF 5% 50V | (E80VP) |
| C605 | 1-163-031-11 | CERAMIC CHIP 0.01uF 50V | |
| C610 | 1-163-009-11 | CERAMIC CHIP 0.001uF 10% 50V | (E80VP) |

< CONNECTOR >

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| CN601 | 1-695-820-11 | CONNECTOR, BOARD TO BOARD 12P | |

< DIODE >

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| D601 | 8-719-970-67 | DIODE SLR-34MCA49 | |
| D602 | 8-719-970-67 | DIODE SLR-34MCA49 | |
| D603 | 8-719-940-99 | LED SLR34VC3 | |
| D606 | 8-719-108-12 | DIODE RD9.1E-W | |
| D607 | 8-719-108-12 | DIODE RD9.1E-W | |
| D608 | 8-719-108-12 | DIODE RD9.1E-W | |
| D610 | 8-719-109-93 | DIODE RD6.2ES-B2 | |

< IC >

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| IC601 | 1-466-833-11 | IC RAY-CATCHER BLOCK, REMOCON | |

< COIL >

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| L601 | 1-410-521-11 | INDUCTOR 100uH | (E80VP) |
| L602 | 1-410-521-11 | INDUCTOR 100uH | (E80VP) |

< JACK >

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| PJ601 | 1-695-865-11 | JACK, PIN 3P (LINE IN 2) | |

< TRANSISTOR >

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| Q601 | 8-729-421-19 | TRANSISTOR UN2213 | |
| Q602 | 8-729-216-22 | TRANSISTOR 2SA1162-G | |

< RESISTOR >

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| R601 | 1-216-238-91 | METAL GLAZE 47K 5% 1/8W | |
| R602 | 1-216-022-00 | METAL CHIP 75 5% 1/10W | |
| R603 | 1-216-041-00 | METAL CHIP 470 5% 1/10W | (E80VP) |
| R603 | 1-216-295-00 | METAL CHIP 0 5% 1/10W | (E80AP, B, IT, NC, NP, UX, UY) |
| R604 | 1-216-041-00 | METAL CHIP 470 5% 1/10W | (E80VP) |
| R604 | 1-216-295-00 | METAL CHIP 0 5% 1/10W | (E80AP, B, IT, NC, NP, UX, UY) |
| R605 | 1-216-170-00 | METAL GLAZE 68 5% 1/8W | |
| R606 | 1-216-180-00 | METAL GLAZE 180 5% 1/8W | |
| R607 | 1-216-057-00 | METAL CHIP 2.2K 5% 1/10W | |

< SWITCH >

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| S601 | 1-571-977-11 | SWITCH, TACTIL (POWER) | |
| S602 | 1-571-977-11 | SWITCH, TACTIL (EJECT) | |

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| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| * | A-6781-279-A | PD-37 BOARD, COMPLETE (E80AP)<br>********************* | |
| * | A-6781-309-A | PD-37 BOARD, COMPLETE (E80UY)<br>********************* | (Ref. NO. 9,000 Series) |

< CAPACITOR >

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| C003 | 1-163-038-00 | CERAMIC CHIP 0.1uF 25V | |
| C004 | 1-124-589-11 | ELECT 47uF 20% 16V | |
| C005 | 1-163-227-11 | CERAMIC CHIP 10PF 0.5PF 50V | (E80AP) |
| C006 | 1-163-227-11 | CERAMIC CHIP 10PF 0.5PF 50V | (E80AP) |
| C007 | 1-163-038-00 | CERAMIC CHIP 0.1uF 25V | (E80AP) |
| C008 | 1-124-589-11 | ELECT 47uF 20% 16V | (E80AP) |
| C009 | 1-164-232-11 | CERAMIC CHIP 0.01uF 50V | (E80AP) |
| C010 | 1-164-232-11 | CERAMIC CHIP 0.01uF 50V | (E80AP) |
| C011 | 1-164-232-11 | CERAMIC CHIP 0.01uF 50V | (E80AP) |
| C012 | 1-126-301-11 | ELECT 1uF 20% 50V | (E80AP) |
| C014 | 1-163-038-00 | CERAMIC CHIP 0.1uF 25V | (E80AP) |

< CONNECTOR >

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| * CN001 | 1-565-438-11 | SOCKET, CONNECTOR (PCB) 10P | |

< DIODE >

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| D001 | 8-719-801-48 | DIODE 1SS193 | (E80AP) |
| D002 | 8-719-801-48 | DIODE 1SS193 | (E80AP) |
| D003 | 8-719-911-19 | DIODE 1SS119 | (E80AP) |

< IC >

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| IC001 | 8-752-845-47 | IC CXP80316-025Q | |
| IC002 | 8-759-168-94 | IC MV1820E-CG-MPEE | (E80AP) |
| IC003 | 8-759-504-44 | IC MM1031XMR | (E80AP) |

< JUMPER RESISTOR >

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| JR001 | 1-216-295-00 | METAL CHIP 0 5% 1/10W | |
| JR002 | 1-216-296-00 | METAL CHIP 0 5% 1/8W | (E80AP) |

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| | | < COIL > | |
| L001 | 1-410-521-11 | INDUCTOR 100uH | |
| L002 | 1-410-509-11 | INDUCTOR 10uH (E80AP) | |
| | | < RESISTOR > | |
| R001 | 1-216-089-91 | METAL GLAZE 47K 5% 1/10W | |
| R002 | 1-216-089-91 | METAL GLAZE 47K 5% 1/10W | |
| R003 | 1-216-073-00 | METAL CHIP 10K 5% 1/10W | (E80AP) |
| R004 | 1-216-073-00 | METAL CHIP 10K 5% 1/10W | (E80AP) |
| R005 | 1-216-073-00 | METAL CHIP 10K 5% 1/10W | (E80AP) |
| | | < VIBRATOR > | |
| X001 | 1-579-125-11 | VIBRATOR, CERAMIC (8MHz) | |
| X002 | 1-579-971-11 | VIBRATOR, CRYSTAL (27.75MHz)(E80AP) | |
| ************************************************************ | | | |
| * | A-6720-579-A | PL-24 BOARD, COMPLETE | |
| | | ********************* | |
| | | (Ref. NO. 5,000 Series) | |
| | | < CONNECTOR > | |
| CN601 | 1-506-469-11 | PIN, CONNECTOR 4P | |
| | | < DIODE > | |
| D601 | 8-719-047-06 | DIODE SEL3713K-TP5 (LCD BACK LIGHT) | |
| D602 | 8-719-047-06 | DIODE SEL3713K-TP5 (LCD BACK LIGHT) | |
| D603 | 8-719-047-06 | DIODE SEL3713K-TP5 (LCD BACK LIGHT) | |
| D604 | 8-719-047-06 | DIODE SEL3713K-TP5 (LCD BACK LIGHT) | |
| | | < PILOT LAMP > | |
| PL601 | 1-517-254-11 | LAMP, PILOT (LCD BACK LIGHT) | |
| PL602 | 1-517-254-11 | LAMP, PILOT (LCD BACK LIGHT) | |
| PL603 | 1-517-254-11 | LAMP, PILOT (LCD BACK LIGHT) | |
| ************************************************************ | | | |
| ⚠* | A-6727-538-A | PT-96 BOARD, COMPLETE (E80NP) | |
| | | ********************* | |
| ⚠* | A-6727-537-A | PT-96 BOARD, COMPLETE (E80UX, UY) | |
| | | ********************* | |
| ⚠* | A-6727-541-A | PT-96 BOARD, COMPLETE (E80B) | |
| | | ********************* | |
| ⚠* | A-6727-544-A | PT-96 BOARD, COMPLETE (E80AP) | |
| | | ********************* | |
| ⚠* | A-6727-546-A | PT-96 BOARD, COMPLETE (E80VP) | |
| | | ********************* | |
| ⚠* | A-6727-547-A | PT-96 BOARD, COMPLETE (E80NC) | |
| | | ********************* | |
| ⚠* | A-6727-549-A | PT-96 BOARD, COMPLETE (E80IT) | |
| | | ********************* | |
| | | (Ref. NO. 3,000 Series) | |
| | 1-558-924-21 | CABLE, PIN (E80AP, B, IT, VP) | |
| | 3-951-893-01 | HEAT SINK | |
| | 7-685-646-81 | SCREW +BVTP 3X8 TYPE2 | |
| | | < BUZZER > | |
| BZ401 | 1-529-080-11 | BUZZER, PIEZOELECTRIC | |
| | | < CAPACITOR > | |
| ⚠C101 | 1-104-706-11 | FILM 0.22uF 20% 250V | |
| ⚠C102 | 1-104-705-11 | FILM 0.1uF 20% 250V | |
| ⚠C103 | 1-107-405-11 | ELECT 68uF 20% 400V | |
| ⚠C104 | 1-161-741-00 | CERAMIC 0.001uF 10% 400V | |
| ⚠C105 | 1-161-741-00 | CERAMIC 0.001uF 10% 400V | |
| ⚠C106 | 1-161-741-00 | CERAMIC 0.001uF 10% 400V | |
| ⚠C107 | 1-161-741-00 | CERAMIC 0.001uF 10% 400V | |
| ⚠C108 | 1-161-741-00 | CERAMIC 0.001uF 10% 400V | |
| C121 | 1-126-103-11 | ELECT 470uF 20% 16V | |
| C122 | 1-124-471-00 | ELECT 1000uF 20% 6.3V | |
| C125 | 1-126-233-11 | ELECT 22uF 20% 50V | |
| C131 | 1-124-120-11 | ELECT 220uF 20% 25V | |
| C132 | 1-126-233-11 | ELECT 22uF 20% 50V | |
| C141 | 1-124-477-11 | ELECT 47uF 20% 25V | |
| C142 | 1-126-101-11 | ELECT 100uF 20% 16V | |
| C152 | 1-124-443-00 | ELECT 100uF 20% 10V | |
| C161 | 1-124-126-00 | ELECT 47uF 20% 10V | |
| C162 | 1-124-442-00 | ELECT 330uF 20% 6.3V | |
| C171 | 1-124-442-00 | ELECT 330uF 20% 6.3V | |
| C181 | 1-124-589-11 | ELECT 47uF 20% 16V | |
| C182 | 1-163-031-11 | CERAMIC CHIP 0.01uF 50V | |
| C183 | 1-163-037-11 | CERAMIC CHIP 0.022uF 10% 25V | |
| C184 | 1-126-157-11 | ELECT 10uF 20% 16V | |
| C185 | 1-124-261-00 | ELECT 10uF 20% 50V | |
| C186 | 1-124-261-00 | ELECT 10uF 20% 50V | |
| C187 | 1-124-261-00 | ELECT 10uF 20% 50V | |
| C189 | 1-163-009-11 | CERAMIC CHIP 0.001uF 10% 50V | |
| C190 | 1-163-009-11 | CERAMIC CHIP 0.001uF 10% 50V | |
| C195 | 1-124-589-11 | ELECT 47uF 20% 16V | |
| C196 | 1-124-589-11 | ELECT 47uF 20% 16V | |
| C197 | 1-124-589-11 | ELECT 47uF 20% 16V | |
| C404 | 1-163-031-11 | CERAMIC CHIP 0.01uF 50V | |
| C405 | 1-163-031-11 | CERAMIC CHIP 0.01uF 50V | |
| C406 | 1-125-705-11 | CAP, DOUBLE LAYERS 0.22F | |
| C407 | 1-165-319-11 | CERAMIC CHIP 0.1uF 50V | |
| C408 | 1-124-442-00 | ELECT 330uF 20% 6.3V | |
| C409 | 1-165-319-11 | CERAMIC CHIP 0.1uF 50V | |

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

| Ref. No. | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| C410 | 1-163-031-11 | CERAMIC CHIP | 0.01uF | | 50V |
| C411 | 1-163-234-11 | CERAMIC CHIP | 20PF | 5% | 50V |
| C412 | 1-163-213-00 | CERAMIC CHIP | 0.0022uF | 5% | 50V |
| C413 | 1-163-235-11 | CERAMIC CHIP | 22PF | 5% | 50V |
| C414 | 1-163-031-11 | CERAMIC CHIP | 0.01uF | | 50V |
| C415 | 1-163-031-11 | CERAMIC CHIP | 0.01uF | | 50V |
| C451 | 1-124-443-00 | ELECT | 100uF | 20% | 10V |
| C452 | 1-124-584-00 | ELECT | 100uF | 20% | 10V |
| C804 | 1-126-233-11 | ELECT | 22uF | 20% | 50V<br>(E80AP, B, IT, VP) |
| C808 | 1-163-031-11 | CERAMIC CHIP | 0.01uF | | 50V<br>(E80AP, B, IT, VP) |
| C809 | 1-126-101-11 | ELECT | 100uF | 20% | 16V<br>(E80AP, B, IT, VP) |
| C810 | 1-163-031-11 | CERAMIC CHIP | 0.01uF | | 50V<br>(E80AP, B, IT, VP) |
| C811 | 1-124-927-11 | ELECT | 4.7uF | 20% | 100V<br>(E80AP, B, IT, VP) |
| C812 | 1-163-009-11 | CERAMIC CHIP | 0.001uF | 10% | 50V<br>(E80AP, B, IT, VP) |
| C813 | 1-163-031-11 | CERAMIC CHIP | 0.01uF | | 50V<br>(E80AP, B, IT, VP) |
| C814 | 1-124-126-00 | ELECT | 47uF | 20% | 10V<br>(E80AP, B, IT, VP) |
| C817 | 1-164-161-11 | CERAMIC CHIP | 0.0022uF | 10% | 100V<br>(E80AP, B, IT, VP) |
| C818 | 1-165-319-11 | CERAMIC CHIP | 0.1uF | | 50V (E80B) |
| C819 | 1-163-031-11 | CERAMIC CHIP | 0.01uF | | 50V<br>(E80AP, B, IT, VP) |
| C820 | 1-124-126-00 | ELECT | 47uF | 20% | 10V<br>(E80AP, B, IT, VP) |
| C824 | 1-124-907-11 | ELECT | 10uF | 20% | 50V<br>(E80AP, IT, VP) |
| C825 | 1-124-907-11 | ELECT | 10uF | 20% | 50V<br>(E80AP, IT, VP) |
| C826 | 1-124-907-11 | ELECT | 10uF | 20% | 50V<br>(E80AP, B, IT, VP) |
| C863 | 1-163-031-11 | CERAMIC CHIP | 0.01uF | | 50V |
| C865 | 1-163-031-11 | CERAMIC CHIP | 0.01uF | | 50V |
| C871 | 1-126-101-11 | ELECT | 100uF | 20% | 16V<br>(E80AP, IT, VP) |
| C872 | 1-163-031-11 | CERAMIC CHIP | 0.01uF | | 50V<br>(E80AP, IT, VP) |
| C873 | 1-130-483-00 | MYLAR | 0.01uF | 5% | 50V<br>(E80AP, IT, VP) |
| C874 | 1-124-907-11 | ELECT | 10uF | 20% | 50V<br>(E80AP, IT, VP) |
| C875 | 1-124-907-11 | ELECT | 10uF | 20% | 50V<br>(E80AP, IT, VP) |

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| | | < CONNECTOR > | |
| ⚠CJ101 | 1-251-134-11 | INLET, AC (NONPOLAR) | |
| CN401 | 1-569-338-11 | CONNECTOR, BOARD TO BOARD 19P | |
| CN402 | 1-569-338-11 | CONNECTOR, BOARD TO BOARD 19P | |
| * CN403 | 1-750-201-21 | CONNECTOR, BOARD TO BOARD 22P | |
| * CN404 | 1-565-439-11 | PIN, CONNECTOR (PCB) 10P | (E80UX, UY) |
| CN404 | 1-573-842-11 | CONNECTOR, BOARD TO BOARD 10P | (E80AP, VP) |
| * CN405 | 1-573-845-11 | CONNECTOR, BOARD TO BOARD 13P | |
| CN801 | 1-568-787-11 | PIN, CONNECTOR 10P | (E80NC, NP, UX, UY) |
| CN802 | 1-568-788-21 | PIN, CONNECTOR 11P | (E80NC, NP, UX, UY) |
| | | < COMPOSITION CIRCUIT BLOCK > | |
| ⚠CP101 | 1-413-897-11 | POWER BLOCK (E80AP, B, IT, NC, NP, VP) | |
| ⚠CP101 | 1-413-940-11 | POWER BLOCK (E80UX, UY) | |
| | | < DIODE > | |
| ⚠D101 | 8-719-510-06 | DIODE S1WB60 | |
| ⚠D131 | 8-719-200-82 | DIODE 11ES2 | |
| D161 | 8-719-911-19 | DIODE 1SS119 | |
| D162 | 8-719-109-85 | DIODE RD5.1ES-B2 | |
| ⚠D181 | 8-719-911-19 | DIODE 1SS119 | |
| ⚠D182 | 8-719-911-19 | DIODE 1SS119 | |
| ⚠D183 | 8-719-911-19 | DIODE 1SS119 | |
| ⚠D184 | 8-719-911-19 | DIODE 1SS119 | |
| ⚠D195 | 8-719-911-19 | DIODE 1SS119 | |
| ⚠D196 | 8-719-911-19 | DIODE 1SS119 | |
| ⚠D403 | 8-719-200-82 | DIODE 11ES2 | |
| D404 | 8-719-911-19 | DIODE 1SS119 | |
| ⚠D801 | 8-719-110-78 | DIODE RD33ES-B2 | (E80AP, B, IT, VP) |
| D802 | 8-719-800-76 | DIODE 1SS226 | (E80AP, B, IT, VP) |
| D851 | 8-719-404-46 | DIODE MA110 | (E80AP, B, IT, VP) |
| ⚠D865 | 8-719-200-82 | DIODE 11ES2 | |
| | | < FUSE > | |
| ⚠F101 | 1-576-228-11 | FUSE (H.B.C.) T2A 250V | |
| | | < FILTER > | |
| FL184 | 1-239-803-11 | FILTER, EMI | |
| FL195 | 1-239-803-11 | FILTER, EMI | |
| | | < IC > | |
| ⚠IC141 | 8-759-189-48 | IC PQ12RE11 | |
| ⚠IC151 | 8-759-189-49 | IC PQ09NF1S | |
| ⚠IC181 | 8-759-189-47 | IC MC34151DR2 | |
| IC401 | 8-759-247-45 | IC MB89095-155 | (E80AP, IT, NC, NP, VP) |
| IC401 | 8-759-247-46 | IC MB89096-119 | (E80UX, UY) |
| IC401 | 8-759-260-65 | IC MB89095-159 | (E80B) |

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| IC402 | 8-759-501-99 | IC ST93C46AB1 | |
| IC405 | 8-759-249-28 | IC MM1254XFBE | |
| IC871 | 8-759-512-95 | IC TDA8415 (E80AP, IT, VP) | |

< JUMPER RESISTOR >

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| JR111 | 1-216-296-00 | METAL CHIP 0 5% 1/8W | |
| JR151 | 1-216-295-00 | METAL CHIP 0 5% 1/10W | |
| JR401 | 1-216-296-00 | METAL CHIP 0 5% 1/8W | |
| JR402 | 1-216-296-00 | METAL CHIP 0 5% 1/8W | |
| JR405 | 1-216-296-00 | METAL CHIP 0 5% 1/8W | |
| JR406 | 1-216-295-00 | METAL CHIP 0 5% 1/10W | |
| JR407 | 1-216-295-00 | METAL CHIP 0 5% 1/10W | |
| JR408 | 1-216-296-00 | METAL CHIP 0 5% 1/8W | |
| JR409 | 1-216-296-00 | METAL CHIP 0 5% 1/8W | |
| JR412 | 1-216-296-00 | METAL CHIP 0 5% 1/8W | |
| JR801 | 1-216-295-00 | METAL CHIP 0 5% 1/10W (E80AP, B, IT, VP) | |
| JR804 | 1-216-295-00 | METAL CHIP 0 5% 1/10W (E80B) | |
| JR805 | 1-216-295-00 | METAL CHIP 0 5% 1/10W (E80B) | |
| JR806 | 1-216-295-00 | METAL CHIP 0 5% 1/10W (E80B) | |
| JR811 | 1-216-295-00 | METAL CHIP 0 5% 1/10W | |
| JR812 | 1-216-295-00 | METAL CHIP 0 5% 1/10W | |
| JR813 | 1-216-296-00 | METAL CHIP 0 5% 1/8W | |
| JR816 | 1-216-296-00 | METAL CHIP 0 5% 1/8W (E80AP, B, IT, VP) | |
| JR817 | 1-216-296-00 | METAL CHIP 0 5% 1/8W (E80AP, B, IT, VP) | |
| JR818 | 1-216-296-00 | METAL CHIP 0 5% 1/8W (E80AP, B, IT, VP) | |
| JR819 | 1-216-296-00 | METAL CHIP 0 5% 1/8W | |
| JR820 | 1-216-296-00 | METAL CHIP 0 5% 1/8W | |
| JR821 | 1-216-296-00 | METAL CHIP 0 5% 1/8W (E80AP, B, IT, VP) | |
| JR822 | 1-216-296-00 | METAL CHIP 0 5% 1/8W (E80AP, B, IT, VP) | |
| JR823 | 1-216-295-00 | METAL CHIP 0 5% 1/10W | |
| JR824 | 1-216-295-00 | METAL CHIP 0 5% 1/10W | |
| JR825 | 1-216-296-00 | METAL CHIP 0 5% 1/8W (E80AP, B, IT, VP) | |
| JR826 | 1-216-296-00 | METAL CHIP 0 5% 1/8W (E80AP, B, IT, VP) | |
| JR827 | 1-216-296-00 | METAL CHIP 0 5% 1/8W (E80AP, B, IT, VP) | |
| JR828 | 1-216-295-00 | METAL CHIP 0 5% 1/10W | |
| JR829 | 1-216-296-00 | METAL CHIP 0 5% 1/8W | |
| JR830 | 1-216-295-00 | METAL CHIP 0 5% 1/10W | |
| JR833 | 1-216-295-00 | METAL CHIP 0 5% 1/10W (E80AP, B, IT, VP) | |
| JR834 | 1-216-296-00 | METAL CHIP 0 5% 1/8W (E80AP, B, IT, VP) | |

< COIL >

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| ⚠L121 | 1-403-588-11 | COIL, CHOKE 22uH | |
| ⚠L122 | 1-403-588-11 | COIL, CHOKE 22uH | |
| L181 | 1-408-421-00 | INDUCTOR 100uH | |
| L182 | 1-410-521-11 | INDUCTOR 100uH | |
| L195 | 1-410-521-11 | INDUCTOR 100uH | |
| L404 | 1-414-183-41 | INDUCTOR 10uH | |
| L801 | 1-414-189-31 | INDUCTOR 100uH (E80AP, B, IT, VP) | |
| L802 | 1-414-183-41 | INDUCTOR 10uH (E80AP, B, IT, VP) | |
| L803 | 1-410-501-11 | INDUCTOR 2.2uH (E80AP, B, IT, VP) | |
| L804 | 1-414-183-41 | INDUCTOR 10uH (E80AP, B, IT, VP) | |
| L862 | 1-408-401-00 | INDUCTOR 2.2uH | |
| L871 | 1-414-183-41 | INDUCTOR 10uH (E80AP, IT, VP) | |

< LINE FILTER >

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| ⚠LF101 | 1-403-599-11 | FILTER, LINE 33MH | |
| ⚠LF102 | 1-403-599-11 | FILTER, LINE 33MH | |

< IC LINK >

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| ⚠PS121 | 1-532-637-00 | LINK, IC 1.0A | |
| ⚠PS123 | 1-532-675-00 | LINK, IC 1.5A | |
| ⚠PS181 | 1-532-679-00 | LINK, IC 0.6A | |

< TRANSISTOR >

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| Q125 | 8-729-424-08 | TRANSISTOR UN2111 | |
| Q126 | 8-729-421-22 | TRANSISTOR UN2211 | |
| ⚠Q131 | 8-729-140-93 | TRANSISTOR 2SB733-34 | |
| Q132 | 8-729-421-22 | TRANSISTOR UN2211 | |
| ⚠Q161 | 8-729-140-98 | TRANSISTOR 2SD773 | |
| Q451 | 8-729-018-99 | TRANSISTOR 2SD2394-F | |
| Q452 | 8-729-902-99 | TRANSISTOR DTC114TK | |
| Q453 | 8-729-902-99 | TRANSISTOR DTC114TK | |
| ⚠Q801 | 8-729-173-38 | TRANSISTOR 2SA733-K (E80AP, B, IT, VP) | |
| Q802 | 8-729-422-27 | TRANSISTOR 2SD601A-Q (E80AP, B, IT, VP) | |
| Q803 | 8-729-422-27 | TRANSISTOR 2SD601A-Q (E80AP, B, IT, VP) | |
| Q805 | 8-729-303-37 | TRANSISTOR 2SD655-E (E80AP, B, IT, VP) | |
| Q861 | 8-729-216-22 | TRANSISTOR 2SA1162-G | |
| Q862 | 8-729-421-19 | TRANSISTOR UN2213 | |
| Q871 | 8-729-422-27 | TRANSISTOR 2SD601A-Q (E80AP, IT, VP) | |

< RESISTOR >

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| R101 | 1-214-947-00 | METAL 2.7M 1% 1/2W | |
| R125 | 1-249-423-11 | CARBON 3.3K 5% 1/4W | F |
| R127 | 1-216-073-00 | METAL CHIP 10K 5% 1/10W | |
| R131 | 1-249-417-11 | CARBON 1K 5% 1/4W | F |
| R132 | 1-260-099-11 | CARBON 1K 5% 1/2W | |
| R133 | 1-216-061-00 | METAL CHIP 3.3K 5% 1/10W | |
| R161 | 1-249-412-11 | CARBON 390 5% 1/4W | F |
| R181 | 1-216-081-00 | METAL CHIP 22K 5% 1/10W | |
| R182 | 1-216-073-00 | METAL CHIP 10K 5% 1/10W | |
| R405 | 1-216-095-00 | METAL CHIP 82K 5% 1/10W | |
| R407 | 1-216-113-00 | METAL CHIP 470K 5% 1/10W | |
| R408 | 1-216-065-00 | METAL CHIP 4.7K 5% 1/10W | |
| R409 | 1-216-049-00 | METAL CHIP 1K 5% 1/10W | |
| R412 | 1-216-198-91 | METAL GLAZE 1K 5% 1/8W | |
| R421 | 1-216-198-91 | METAL GLAZE 1K 5% 1/8W | |
| R423 | 1-216-222-00 | METAL GLAZE 10K 5% 1/8W | |

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

| Ref. No. | Part No. | Description | | | | Remark |
|---|---|---|---|---|---|---|
| R431 | 1-216-049-00 | METAL CHIP | 1K | 5% | 1/10W | |
| R432 | 1-216-198-91 | METAL GLAZE | 1K | 5% | 1/8W | |
| R433 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | F |
| R452 | 1-216-186-00 | METAL GLAZE | 330 | 5% | 1/8W | |
| R453 | 1-216-047-00 | METAL CHIP | 820 | 5% | 1/10W | |
| R454 | 1-216-065-00 | METAL CHIP | 4.7K | 5% | 1/10W | |
| R455 | 1-216-073-00 | METAL CHIP | 10K | 5% | 1/10W | |
| R456 | 1-216-186-00 | METAL GLAZE | 330 | 5% | 1/8W | |
| R457 | 1-216-073-00 | METAL CHIP | 10K | 5% | 1/10W | |
| R458 | 1-216-186-00 | METAL GLAZE | 330 | 5% | 1/8W | |
| R460 | 1-216-073-00 | METAL CHIP | 10K | 5% | 1/10W | |
| R462 | 1-216-296-00 | METAL CHIP | 0 | 5% | 1/8W | |
| R463 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | F |
| R464 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | F |
| R465 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | F |
| R466 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | F |
| R467 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | F |
| R469 | 1-216-073-00 | METAL CHIP | 10K | 5% | 1/10W | |
| R470 | 1-216-206-00 | METAL GLAZE | 2.2K | 5% | 1/8W | (E80AP, IT) |
| R470 | 1-216-214-00 | METAL GLAZE | 4.7K | 5% | 1/8W | (E80VP) |
| R470 | 1-216-224-91 | METAL GLAZE | 12K | 5% | 1/8W | (E80NP) |
| R470 | 1-216-230-00 | METAL GLAZE | 22K | 5% | 1/8W | (E80NC) |
| R470 | 1-216-238-91 | METAL GLAZE | 47K | 5% | 1/8W | (E80B) |
| R470 | 1-216-296-00 | METAL CHIP | 0 | 5% | 1/8W | (E80UX, UY) |
| R471 | 1-216-073-00 | METAL CHIP | 10K | 5% | 1/10W | |
| R473 | 1-216-049-00 | METAL CHIP | 1K | 5% | 1/10W | |
| R474 | 1-216-049-00 | METAL CHIP | 1K | 5% | 1/10W | |
| R475 | 1-216-049-00 | METAL CHIP | 1K | 5% | 1/10W | |
| R478 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | F |
| R480 | 1-249-429-11 | CARBON | 10K | 5% | 1/4W | (E80B, NP) |
| R484 | 1-216-049-00 | METAL CHIP | 1K | 5% | 1/10W | |
| R485 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | F (E80B, NP) |
| R487 | 1-216-049-00 | METAL CHIP | 1K | 5% | 1/10W | (E80B, NP) |
| R492 | 1-216-296-00 | METAL CHIP | 0 | 5% | 1/8W | |
| R494 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | F |
| R495 | 1-249-417-11 | CARBON | 1K | 5% | 1/4W | F |
| R496 | 1-216-073-00 | METAL CHIP | 10K | 5% | 1/10W | (E80AP, IT, NC, NP, UX, UY, VP) |
| R497 | 1-216-073-00 | METAL CHIP | 10K | 5% | 1/10W | (E80AP, IT, NC, NP, UX, UY, VP) |
| R498 | 1-216-222-00 | METAL GLAZE | 10K | 5% | 1/8W | |
| R499 | 1-216-222-00 | METAL GLAZE | 10K | 5% | 1/8W | |
| R801 | 1-216-198-91 | METAL GLAZE | 1K | 5% | 1/8W | (E80AP, B, IT, VP) |
| R802 | 1-216-198-91 | METAL GLAZE | 1K | 5% | 1/8W | (E80AP, B, IT, VP) |
| R803 | 1-216-182-91 | METAL GLAZE | 220 | 5% | 1/8W | (E80AP, B, IT, VP) |

| Ref. No. | Part No. | Description | | | | Remark |
|---|---|---|---|---|---|---|
| R804 | 1-216-238-91 | METAL GLAZE | 47K | 5% | 1/8W | (E80AP, B, IT, VP) |
| R805 | 1-216-025-00 | METAL CHIP | 100 | 5% | 1/10W | (E80AP, B, IT, VP) |
| R806 | 1-216-071-00 | METAL CHIP | 8.2K | 5% | 1/10W | (E80AP, B, IT, VP) |
| R807 | 1-216-075-00 | METAL CHIP | 12K | 5% | 1/10W | (E80AP, B, IT, VP) |
| R808 | 1-216-049-00 | METAL CHIP | 1K | 5% | 1/10W | (E80AP, B, IT, VP) |
| R809 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | (E80AP, B, IT, VP) |
| R810 | 1-216-025-00 | METAL CHIP | 100 | 5% | 1/10W | (E80AP, B, IT, VP) |
| R811 | 1-216-037-00 | METAL CHIP | 330 | 5% | 1/10W | |
| R812 | 1-216-037-00 | METAL CHIP | 330 | 5% | 1/10W | (E80AP, B, IT, VP) |
| R820 | 1-216-198-91 | METAL GLAZE | 1K | 5% | 1/8W | (E80B) |
| R821 | 1-216-198-91 | METAL GLAZE | 1K | 5% | 1/8W | (E80B) |
| R824 | 1-216-049-00 | METAL CHIP | 1K | 5% | 1/10W | (E80AP, B, IT, VP) |
| R825 | 1-216-296-00 | METAL CHIP | 0 | 5% | 1/8W | (E80AP, B, IT, VP) |
| R827 | 1-216-296-00 | METAL CHIP | 0 | 5% | 1/8W | (E80AP, B, IT, VP) |
| R836 | 1-216-049-00 | METAL CHIP | 1K | 5% | 1/10W | (E80AP, IT, NC, NP, UX, UY, VP) |
| R837 | 1-216-049-00 | METAL CHIP | 1K | 5% | 1/10W | (E80AP, IT, NC, NP, UX, UY, VP) |
| R838 | 1-216-041-00 | METAL CHIP | 470 | 5% | 1/10W | (E80B, NP, VP) |
| R838 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | (E80AP, IT, NC, UX, UY) |
| R853 | 1-216-113-00 | METAL CHIP | 470K | 5% | 1/10W | (E80AP, B, IT, VP) |
| R861 | 1-216-077-00 | METAL CHIP | 15K | 5% | 1/10W | (E80B) |
| R862 | 1-216-059-00 | METAL CHIP | 2.7K | 5% | 1/10W | (E80B) |
| R862 | 1-216-081-00 | METAL CHIP | 22K | 5% | 1/10W | (E80AP, IT, NC, NP, UX, UY, VP) |
| R864 | 1-216-049-00 | METAL CHIP | 1K | 5% | 1/10W | |
| R871 | 1-216-204-00 | METAL GLAZE | 1.8K | 5% | 1/8W | (E80AP, B, IT, VP) |
| R872 | 1-216-049-00 | METAL CHIP | 1K | 5% | 1/10W | (E80AP, B, IT, VP) |
| R873 | 1-216-049-00 | METAL CHIP | 1K | 5% | 1/10W | (E80AP, B, IT, VP) |
| R874 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | (E80AP, B, IT, VP) |
| R875 | 1-216-049-00 | METAL CHIP | 1K | 5% | 1/10W | (E80AP, B, IT, VP) |

| Ref. No. | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| R877 | 1-216-049-00 | METAL CHIP | 1K | 5% | 1/10W<br>(E80AP, B, IT, VP) |
| R878 | 1-216-198-91 | METAL GLAZE | 1K | 5% | 1/8W (E80B) |
| | | < RF MODULATOR > | | | |
| ⚠RF801 | 1-466-328-11 | MODULATOR, RF (RFU-2017)<br>(E80AP, IT, NC, NP, VP) | | | |
| ⚠RF801 | 1-466-347-11 | MODULATOR, RF (RFU-2024) (E80UX, UY) | | | |
| ⚠RF801 | 1-466-348-11 | MODULATOR, RF (RFU-2023) (E80B) | | | |
| | | < VARIABLE RESISTOR > | | | |
| RV871 | 1-241-763-11 | RES, ADJ, CARBON 4.7K (E80AP, IT, VP) | | | |
| | | < TUNER > | | | |
| ⚠TU801 | 1-693-205-11 | TUNER (BTF-3C402) (E80B) | | | |
| ⚠TU801 | 1-693-207-11 | TUNER (BTF-3C401) (E80AP, IT, VP) | | | |
| | | < VIBRATOR > | | | |
| X401 | 1-579-463-11 | VIBRATOR, CRYSTAL (32KHz) | | | |
| X402 | 1-579-175-11 | VIBRATOR, CERAMIC (10MHz) | | | |
| X871 | 1-567-925-11 | VIBRATOR, CRYSTAL (10MHz) (E80AP, IT, VP) | | | |
| ************************************************************ | | | | | |
| * | A-6727-542-A | RV-33 BOARD, COMPLETE (E80B)<br>********************** | | | |
| * | A-6727-545-A | RV-33 BOARD, COMPLETE<br>**********************<br>(E80AP, IT, NC, NP, UX, UY, VP)<br>(Ref. NO. 1,000 Series) | | | |
| * | 3-957-421-11 | HOLDER, SECAM IC (E80B) | | | |
| | | < CAPACITOR > | | | |
| C001 | 1-163-989-11 | CERAMIC CHIP | 0.033uF | 10% | 25V |
| C002 | 1-164-699-11 | CERAMIC CHIP | 0.0033uF | 5% | 50V |
| C003 | 1-124-465-00 | ELECT | 0.47uF | 20% | 50V |
| C004 | 1-163-100-00 | CERAMIC CHIP | 20PF | 5% | 50V |
| C005 | 1-163-109-00 | CERAMIC CHIP | 47PF | 5% | 50V |
| C006 | 1-124-257-00 | ELECT | 2.2uF | 20% | 50V |
| C007 | 1-163-235-11 | CERAMIC CHIP | 22PF | 5% | 50V |
| C009 | 1-163-031-11 | CERAMIC CHIP | 0.01uF | | 50V |
| C010 | 1-163-037-11 | CERAMIC CHIP | 0.022uF | 10% | 25V |
| C011 | 1-124-463-00 | ELECT | 0.1uF | 20% | 50V |
| C012 | 1-164-004-11 | CERAMIC CHIP | 0.1uF | 10% | 25V |
| C013 | 1-164-161-11 | CERAMIC CHIP | 0.0022uF | 10% | 100V |
| C016 | 1-163-095-00 | CERAMIC CHIP | 12PF | 5% | 50V |
| C018 | 1-126-163-11 | ELECT | 4.7uF | 20% | 50V |
| C019 | 1-163-031-11 | CERAMIC CHIP | 0.01uF | | 50V |
| C024 | 1-163-031-11 | CERAMIC CHIP | 0.01uF | | 50V |
| C026 | 1-126-157-11 | ELECT | 10uF | 20% | 16V |
| C027 | 1-163-234-11 | CERAMIC CHIP | 20PF | 5% | 50V |
| C029 | 1-124-465-00 | ELECT | 0.47uF | 20% | 50V |
| C030 | 1-163-035-00 | CERAMIC CHIP | 0.047uF | | 50V |
| C031 | 1-124-638-11 | ELECT | 22uF | 20% | 10V |
| C032 | 1-126-162-11 | ELECT | 3.3uF | 20% | 50V |
| C033 | 1-124-638-11 | ELECT | 22uF | 20% | 10V |
| C034 | 1-163-035-00 | CERAMIC CHIP | 0.047uF | | 50V |
| C036 | 1-163-031-11 | CERAMIC CHIP | 0.01uF | | 50V |
| C038 | 1-163-087-00 | CERAMIC CHIP | 4PF | | 50V |
| C039 | 1-163-101-00 | CERAMIC CHIP | 22PF | 5% | 50V |
| C045 | 1-124-257-00 | ELECT | 2.2uF | 20% | 50V |
| C046 | 1-164-004-11 | CERAMIC CHIP | 0.1uF | 10% | 25V |
| C047 | 1-164-004-11 | CERAMIC CHIP | 0.1uF | 10% | 25V |
| C048 | 1-163-077-00 | CERAMIC CHIP | 0.1uF | 10% | 25V |
| C049 | 1-163-107-00 | CERAMIC CHIP | 39PF | 5% | 50V |
| C050 | 1-163-123-00 | CERAMIC CHIP | 180PF | 5% | 50V |
| C051 | 1-163-031-11 | CERAMIC CHIP | 0.01uF | | 50V |
| C052 | 1-163-105-00 | CERAMIC CHIP | 33PF | 5% | 50V |
| C053 | 1-124-465-00 | ELECT | 0.47uF | 20% | 50V |
| C055 | 1-163-109-00 | CERAMIC CHIP | 47PF | 5% | 50V |
| C056 | 1-163-139-00 | CERAMIC CHIP | 820PF | 5% | 50V |
| C057 | 1-163-031-11 | CERAMIC CHIP | 0.01uF | | 50V |
| C058 | 1-124-465-00 | ELECT | 0.47uF | 20% | 50V |
| C059 | 1-163-031-11 | CERAMIC CHIP | 0.01uF | | 50V |
| C060 | 1-163-031-11 | CERAMIC CHIP | 0.01uF | | 50V |
| C061 | 1-163-125-00 | CERAMIC CHIP | 220PF | 5% | 50V |
| C062 | 1-163-127-00 | CERAMIC CHIP | 270PF | 5% | 50V |
| C063 | 1-163-035-00 | CERAMIC CHIP | 0.047uF | | 50V |
| C064 | 1-124-638-11 | ELECT | 22uF | 20% | 10V |
| C065 | 1-163-121-00 | CERAMIC CHIP | 150PF | 5% | 50V |
| C066 | 1-163-809-11 | CERAMIC CHIP | 0.047uF | 10% | 25V |
| C067 | 1-165-320-11 | CERAMIC CHIP | 0.47uF | 10% | 16V |
| C069 | 1-163-031-11 | CERAMIC CHIP | 0.01uF | | 50V |
| C073 | 1-163-113-00 | CERAMIC CHIP | 68PF | 5% | 50V |
| C074 | 1-163-125-00 | CERAMIC CHIP | 220PF | 5% | 50V (E80B) |
| C075 | 1-163-117-00 | CERAMIC CHIP | 100PF | 5% | 50V (E80B) |
| C075 | 1-163-129-00 | CERAMIC CHIP | 330PF | 5% | 50V<br>(E80AP, IT, NC, NP, UX, UY, VP) |
| C079 | 1-163-031-11 | CERAMIC CHIP | 0.01uF | | 50V |
| C081 | 1-163-091-00 | CERAMIC CHIP | 8PF | | 50V |
| C083 | 1-163-031-11 | CERAMIC CHIP | 0.01uF | | 50V |
| C086 | 1-163-031-11 | CERAMIC CHIP | 0.01uF | | 50V |
| C087 | 1-163-031-11 | CERAMIC CHIP | 0.01uF | | 50V |
| C095 | 1-163-033-00 | CERAMIC CHIP | 0.022uF | | 50V (E80B) |
| C096 | 1-163-129-00 | CERAMIC CHIP | 330PF | 5% | 50V (E80B) |
| C098 | 1-124-638-11 | ELECT | 22uF | 20% | 10V |
| C099 | 1-163-031-11 | CERAMIC CHIP | 0.01uF | | 50V |
| C101 | 1-163-031-11 | CERAMIC CHIP | 0.01uF | | 50V |

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

## RV-33

| Ref. No. | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| C102 | 1-163-130-00 | CERAMIC CHIP | 360PF | 5% | 50V |
| C120 | 1-124-638-11 | ELECT | 22uF | 20% | 10V |
| C121 | 1-163-031-11 | CERAMIC CHIP | 0.01uF | | 50V |
| C203 | 1-163-031-11 | CERAMIC CHIP | 0.01uF | | 50V (E80B) |
| C204 | 1-126-154-11 | ELECT | 47uF | 20% | 6.3V (E80B) |
| C205 | 1-126-163-11 | ELECT | 4.7uF | 20% | 50V (E80B) |
| C206 | 1-163-035-00 | CERAMIC CHIP | 0.047uF | | 50V (E80B) |
| C207 | 1-124-638-11 | ELECT | 22uF | 20% | 10V (E80B) |
| C208 | 1-163-113-00 | CERAMIC CHIP | 68PF | 5% | 50V (E80B) |
| C209 | 1-163-031-11 | CERAMIC CHIP | 0.01uF | | 50V (E80B) |
| C260 | 1-163-031-11 | CERAMIC CHIP | 0.01uF | | 50V |
| C261 | 1-124-584-00 | ELECT | 100uF | 20% | 10V |
| C262 | 1-163-031-11 | CERAMIC CHIP | 0.01uF | | 50V |
| C263 | 1-163-038-00 | CERAMIC CHIP | 0.1uF | | 25V |
| C264 | 1-124-257-00 | ELECT | 2.2uF | 20% | 50V |
| C265 | 1-163-031-11 | CERAMIC CHIP | 0.01uF | | 50V |
| C267 | 1-163-031-11 | CERAMIC CHIP | 0.01uF | | 50V |
| C268 | 1-163-263-11 | CERAMIC CHIP | 330PF | 5% | 50V |
| C269 | 1-163-263-11 | CERAMIC CHIP | 330PF | 5% | 50V |
| C270 | 1-163-038-00 | CERAMIC CHIP | 0.1uF | | 25V |
| C273 | 1-163-031-11 | CERAMIC CHIP | 0.01uF | | 50V |
| C274 | 1-163-038-00 | CERAMIC CHIP | 0.1uF | | 25V |
| C275 | 1-126-160-11 | ELECT | 1uF | 20% | 50V |
| C276 | 1-163-031-11 | CERAMIC CHIP | 0.01uF | | 50V |
| C278 | 1-163-113-00 | CERAMIC CHIP | 68PF | 5% | 50V (E80B) |
| C701 | 1-124-638-11 | ELECT | 22uF | 20% | 10V (E80B) |
| C705 | 1-124-638-11 | ELECT | 22uF | 20% | 10V (E80B) |
| C801 | 1-163-033-00 | CERAMIC CHIP | 0.022uF | | 50V |
| C802 | 1-163-033-00 | CERAMIC CHIP | 0.022uF | | 50V |
| C803 | 1-163-033-00 | CERAMIC CHIP | 0.022uF | | 50V |
| C804 | 1-163-038-00 | CERAMIC CHIP | 0.1uF | | 25V |
| C805 | 1-163-033-00 | CERAMIC CHIP | 0.022uF | | 50V |
| C806 | 1-163-117-00 | CERAMIC CHIP | 100PF | 5% | 50V |
| C807 | 1-163-038-00 | CERAMIC CHIP | 0.1uF | | 25V |
| C808 | 1-124-584-00 | ELECT | 100uF | 20% | 10V |
| C809 | 1-163-038-00 | CERAMIC CHIP | 0.1uF | | 25V |
| C810 | 1-124-584-00 | ELECT | 100uF | 20% | 10V |
| C811 | 1-163-031-11 | CERAMIC CHIP | 0.01uF | | 50V |
| C813 | 1-164-336-11 | CERAMIC CHIP | 0.33uF | | 25V |
| C814 | 1-163-038-00 | CERAMIC CHIP | 0.1uF | | 25V |
| C815 | 1-163-038-00 | CERAMIC CHIP | 0.1uF | | 25V |
| C816 | 1-163-038-00 | CERAMIC CHIP | 0.1uF | | 25V |
| C817 | 1-163-038-00 | CERAMIC CHIP | 0.1uF | | 25V |
| C818 | 1-163-031-11 | CERAMIC CHIP | 0.01uF | | 50V |
| C822 | 1-163-129-00 | CERAMIC CHIP | 330PF | 5% | 50V |
| C826 | 1-124-229-00 | ELECT | 33uF | 20% | 10V |
| C827 | 1-163-038-00 | CERAMIC CHIP | 0.1uF | | 25V |
| C829 | 1-163-031-11 | CERAMIC CHIP | 0.01uF | | 50V |
| C830 | 1-163-107-00 | CERAMIC CHIP | 39PF | 5% | 50V |

| Ref. No. | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| C838 | 1-163-031-11 | CERAMIC CHIP | 0.01uF | | 50V |
| C840 | 1-163-031-11 | CERAMIC CHIP | 0.01uF | | 50V |
| C842 | 1-126-160-11 | ELECT | 1uF | 20% | 50V |
| C881 | 1-163-097-00 | CERAMIC CHIP | 15PF | 5% | 50V |
| C882 | 1-163-097-00 | CERAMIC CHIP | 15PF | 5% | 50V |
| C883 | 1-163-097-00 | CERAMIC CHIP | 15PF | 5% | 50V |
| C884 | 1-163-097-00 | CERAMIC CHIP | 15PF | 5% | 50V |
| C901 | 1-163-095-00 | CERAMIC CHIP | 12PF | 5% | 50V |
| C902 | 1-163-033-00 | CERAMIC CHIP | 0.022uF | | 50V |
| C903 | 1-163-239-11 | CERAMIC CHIP | 33PF | 5% | 50V |
| C904 | 1-163-031-11 | CERAMIC CHIP | 0.01uF | | 50V |
| C907 | 1-163-033-00 | CERAMIC CHIP | 0.022uF | | 50V |
| C908 | 1-163-031-11 | CERAMIC CHIP | 0.01uF | | 50V |
| C909 | 1-163-031-11 | CERAMIC CHIP | 0.01uF | | 50V |
| C910 | 1-163-031-11 | CERAMIC CHIP | 0.01uF | | 50V |
| C911 | 1-163-243-11 | CERAMIC CHIP | 47PF | 5% | 50V |
| C912 | 1-163-031-11 | CERAMIC CHIP | 0.01uF | | 50V |
| C913 | 1-163-031-11 | CERAMIC CHIP | 0.01uF | | 50V |
| C914 | 1-163-117-00 | CERAMIC CHIP | 100PF | 5% | 50V |
| C916 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W |
| C917 | 1-163-035-00 | CERAMIC CHIP | 0.047uF | | 50V |
| C920 | 1-163-129-00 | CERAMIC CHIP | 330PF | 5% | 50V |
| C921 | 1-124-229-00 | ELECT | 33uF | 20% | 10V |

< FILTER >

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| CF201 | 1-527-943-00 | FILTER, CERAMIC | (E80B) |

< CONNECTOR >

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| CN001 | 1-573-828-11 | CONNECTOR, BOARD TO BOARD 14P | |
| CN002 | 1-573-834-11 | CONNECTOR, BOARD TO BOARD 20P | |
| CN801 | 1-563-590-11 | CONNECTOR, FLEXIBLE 13P | |
| * CN802 | 1-564-029-00 | PIN, CONNECTOR 4P | |
| * CN803 | 1-564-013-11 | PIN, CONNECTOR 3P | |

< DIODE >

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| D801 | 8-719-801-78 | DIODE 1SS184 | |
| D802 | 8-719-801-78 | DIODE 1SS184 | |
| D803 | 8-719-801-78 | DIODE 1SS184 | |
| D901 | 8-719-951-22 | IC IMN10 | |

< DELAY LINE >

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| DL003 | 1-415-728-21 | DELAY LINE, 2H (ULTRASONIC) | |
| DL003 | 1-415-728-31 | DELAY LINE, 2H (ULTRASONIC) | |

< IC >

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| IC001 | 8-759-183-95 | IC HA118385FEB | |
| IC003 | 8-759-194-19 | IC MSM7450MS-K-TP | |
| IC201 | 8-759-199-28 | IC BA7025F-E2 | (E80B) |

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| IC260 | 8-759-055-49 | IC AN3327K | |
| IC801 | 8-759-194-25 | IC HA118191NT | |
| IC702 | 1-809-959-21 | IC TME687 (E80B) | |

< JUMPER RESISTOR >

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| JR022 | 1-216-295-00 | METAL CHIP 0 5% 1/10W | |
| JR030 | 1-216-295-00 | METAL CHIP 0 5% 1/10W | |

< COIL >

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| L001 | 1-408-970-21 | INDUCTOR 10uH | |
| L002 | 1-408-975-21 | INDUCTOR 27uH | |
| L003 | 1-408-970-21 | INDUCTOR 10uH | |
| L005 | 1-408-972-21 | INDUCTOR 15uH | |
| L006 | 1-408-976-21 | INDUCTOR 33uH | |
| L007 | 1-408-982-11 | INDUCTOR 100uH | |
| L008 | 1-408-982-11 | INDUCTOR 100uH | |
| L009 | 1-408-980-21 | INDUCTOR 68uH | |
| L010 | 1-408-976-21 | INDUCTOR 33uH | |
| L011 | 1-408-983-21 | INDUCTOR 120uH | |
| L012 | 1-408-429-00 | INDUCTOR 470uH | |
| L013 | 1-408-427-00 | INDUCTOR 330uH | |
| L014 | 1-408-978-21 | INDUCTOR 47uH | |
| L015 | 1-408-982-11 | INDUCTOR 100uH | |
| L017 | 1-408-985-21 | INDUCTOR 180uH | |
| L018 | 1-408-982-11 | INDUCTOR 100uH | |
| L019 | 1-408-980-21 | INDUCTOR 68uH (E80B) | |
| L202 | 1-408-982-11 | INDUCTOR 100uH (E80B) | |
| L260 | 1-408-982-11 | INDUCTOR 100uH | |
| L701 | 1-408-982-11 | INDUCTOR 100uH (E80B) | |
| L801 | 1-408-948-00 | INDUCTOR 220uH | |
| L802 | 1-408-948-00 | INDUCTOR 220uH | |
| L803 | 1-408-982-11 | INDUCTOR 100uH | |
| L804 | 1-408-982-11 | INDUCTOR 100uH | |
| L810 | 1-408-985-21 | INDUCTOR 180uH | |
| L812 | 1-408-982-11 | INDUCTOR 100uH | |
| L901 | 1-408-974-21 | INDUCTOR 22uH | |
| L902 | 1-408-948-00 | INDUCTOR 220uH | |
| L908 | 1-408-982-11 | INDUCTOR 100uH | |

< TRANSISTOR >

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| Q001 | 8-729-010-25 | TRANSISTOR MSD601-RT1 | |
| Q003 | 8-729-010-25 | TRANSISTOR MSD601-RT1 | |
| Q004 | 8-729-010-25 | TRANSISTOR MSD601-RT1 | |
| Q006 | 8-729-010-25 | TRANSISTOR MSD601-RT1 | |
| Q007 | 8-729-010-05 | TRANSISTOR MSB709-RT1 | |
| Q011 | 8-729-010-25 | TRANSISTOR MSD601-RT1 | |
| Q013 | 8-729-010-25 | TRANSISTOR MSD601-RT1 | |
| Q016 | 8-729-424-56 | TRANSISTOR UN211L | |
| Q021 | 8-729-421-19 | TRANSISTOR UN2213 | |
| Q029 | 8-729-421-19 | TRANSISTOR UN2213 | |
| Q030 | 8-729-421-19 | TRANSISTOR UN2213 | |
| Q031 | 8-729-424-08 | TRANSISTOR UN2111 | |
| Q032 | 8-729-421-19 | TRANSISTOR UN2213 (E80B) | |
| Q032 | 8-729-424-90 | TRANSISTOR UN221L-TX (E80AP, IT, NC, NP, UX, UY, VP) | |
| Q033 | 8-729-421-19 | TRANSISTOR UN2213 (E80B) | |
| Q033 | 8-729-424-90 | TRANSISTOR UN221L-TX (E80AP, IT, NC, NP, UX, UY, VP) | |
| Q034 | 8-729-230-49 | TRANSISTOR 2SC2712-YG | |
| Q035 | 8-729-421-19 | TRANSISTOR UN2213 (E80B) | |
| Q040 | 8-729-421-19 | TRANSISTOR UN2213 | |
| Q045 | 8-729-421-19 | TRANSISTOR UN2213 (E80B) | |
| Q051 | 8-729-421-19 | TRANSISTOR UN2213 | |
| Q201 | 8-729-010-25 | TRANSISTOR MSD601-RT1 (E80B) | |
| Q810 | 8-729-421-19 | TRANSISTOR UN2213 | |
| Q811 | 8-729-921-12 | TRANSISTOR 2SD1834 | |
| Q817 | 8-729-230-49 | TRANSISTOR 2SC2712-YG | |
| Q818 | 8-729-421-19 | TRANSISTOR UN2213 | |
| Q819 | 8-729-230-49 | TRANSISTOR 2SC2712-YG | |
| Q840 | 8-729-230-49 | TRANSISTOR 2SC2712-YG | |
| Q841 | 8-729-216-21 | TRANSISTOR 2SA1162Y-TE85L | |
| Q904 | 8-729-230-49 | TRANSISTOR 2SC2712-YG | |
| Q906 | 8-729-230-49 | TRANSISTOR 2SC2712-YG | |
| Q907 | 8-729-230-49 | TRANSISTOR 2SC2712-YG | |
| Q908 | 8-729-230-49 | TRANSISTOR 2SC2712-YG | |
| Q909 | 8-729-230-49 | TRANSISTOR 2SC2712-YG | |

< RESISTOR >

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| R001 | 1-216-057-00 | METAL CHIP 2.2K 5% 1/10W | |
| R002 | 1-216-057-00 | METAL CHIP 2.2K 5% 1/10W | |
| R003 | 1-216-049-00 | METAL CHIP 1K 5% 1/10W | |
| R004 | 1-216-061-00 | METAL CHIP 3.3K 5% 1/10W | |
| R005 | 1-216-071-00 | METAL CHIP 8.2K 5% 1/10W | |
| R009 | 1-216-049-00 | METAL CHIP 1K 5% 1/10W | |
| R010 | 1-216-081-00 | METAL CHIP 22K 5% 1/10W | |
| R012 | 1-216-081-00 | METAL CHIP 22K 5% 1/10W | |
| R014 | 1-216-081-00 | METAL CHIP 22K 5% 1/10W | |
| R016 | 1-216-049-00 | METAL CHIP 1K 5% 1/10W | |
| R018 | 1-216-037-00 | METAL CHIP 330 5% 1/10W | |
| R019 | 1-216-037-00 | METAL CHIP 330 5% 1/10W | |
| R024 | 1-216-035-00 | METAL CHIP 270 5% 1/10W | |
| R025 | 1-216-056-00 | METAL GLAZE 2K 5% 1/10W | |
| R027 | 1-216-071-00 | METAL CHIP 8.2K 5% 1/10W | |
| R029 | 1-216-049-00 | METAL CHIP 1K 5% 1/10W | |
| R030 | 1-216-049-00 | METAL CHIP 1K 5% 1/10W | |
| R040 | 1-216-121-00 | METAL CHIP 1M 5% 1/10W | |

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| Ref. No. | Part No. | Description | | | Remark |
|---|---|---|---|---|---|
| R041 | 1-216-046-00 | METAL CHIP | 750 | 5% | 1/10W |
| R042 | 1-216-043-00 | METAL CHIP | 560 | 5% | 1/10W |
| R043 | 1-216-043-00 | METAL CHIP | 560 | 5% | 1/10W |
| R044 | 1-216-061-00 | METAL CHIP | 3.3K | 5% | 1/10W |
| R045 | 1-216-058-00 | METAL GLAZE | 2.4K | 5% | 1/10W |
| R046 | 1-216-045-00 | METAL CHIP | 680 | 5% | 1/10W |
| R047 | 1-216-059-00 | METAL CHIP | 2.7K | 5% | 1/10W |
| R048 | 1-216-063-00 | METAL CHIP | 3.9K | 5% | 1/10W |
| R049 | 1-216-063-00 | METAL CHIP | 3.9K | 5% | 1/10W |
| R050 | 1-216-065-00 | METAL CHIP | 4.7K | 5% | 1/10W |
| R051 | 1-216-036-00 | METAL CHIP | 300 | 5% | 1/10W |
| R052 | 1-216-052-00 | METAL CHIP | 1.3K | 5% | 1/10W |
| R053 | 1-216-071-00 | METAL CHIP | 8.2K | 5% | 1/10W |
| R055 | 1-216-071-00 | METAL CHIP | 8.2K | 5% | 1/10W |
| R056 | 1-216-077-00 | METAL CHIP | 15K | 5% | 1/10W |
| R057 | 1-216-049-00 | METAL CHIP | 1K | 5% | 1/10W |
| R058 | 1-216-049-00 | METAL CHIP | 1K | 5% | 1/10W |
| R059 | 1-216-037-00 | METAL CHIP | 330 | 5% | 1/10W |
| R060 | 1-216-043-00 | METAL CHIP | 560 | 5% | 1/10W |
| R062 | 1-216-065-00 | METAL CHIP | 4.7K | 5% | 1/10W |
| R065 | 1-216-073-00 | METAL CHIP | 10K | 5% | 1/10W |
| R066 | 1-216-073-00 | METAL CHIP | 10K | 5% | 1/10W |
| R067 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W |
| R069 | 1-216-047-00 | METAL CHIP | 820 | 5% | 1/10W |
| R070 | 1-216-049-00 | METAL CHIP | 1K | 5% | 1/10W (E80B) |
| R071 | 1-216-058-00 | METAL GLAZE | 2.4K | 5% | 1/10W |
| R072 | 1-216-072-00 | METAL CHIP | 9.1K | 5% | 1/10W |
| R075 | 1-216-065-00 | METAL CHIP | 4.7K | 5% | 1/10W |
| R077 | 1-216-085-00 | METAL CHIP | 33K | 5% | 1/10W |
| R078 | 1-216-081-00 | METAL CHIP | 22K | 5% | 1/10W |
| R079 | 1-216-073-00 | METAL CHIP | 10K | 5% | 1/10W |
| R080 | 1-216-057-00 | METAL CHIP | 2.2K | 5% | 1/10W |
| R081 | 1-216-073-00 | METAL CHIP | 10K | 5% | 1/10W (E80B) |
| R082 | 1-216-055-00 | METAL CHIP | 1.8K | 5% | 1/10W |
| R083 | 1-216-083-00 | METAL CHIP | 27K | 5% | 1/10W |
| R084 | 1-216-089-91 | METAL GLAZE | 47K | 5% | 1/10W |
| R085 | 1-216-045-00 | METAL CHIP | 680 | 5% | 1/10W |
| R086 | 1-216-066-00 | METAL CHIP | 5.1K | 5% | 1/10W |
| R088 | 1-216-059-00 | METAL CHIP | 2.7K | 5% | 1/10W |
| R091 | 1-216-041-00 | METAL CHIP | 470 | 5% | 1/10W (E80B) |
| R091 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W<br>(E80AP, IT, NC, NP, UX, UY, VP) |
| R094 | 1-216-073-00 | METAL CHIP | 10K | 5% | 1/10W |
| R099 | 1-216-059-00 | METAL CHIP | 2.7K | 5% | 1/10W |
| R102 | 1-216-061-00 | METAL CHIP | 3.3K | 5% | 1/10W |
| R113 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W |
| R119 | 1-216-066-00 | METAL CHIP | 5.1K | 5% | 1/10W |
| R204 | 1-216-049-00 | METAL CHIP | 1K | 5% | 1/10W (E80B) |
| R205 | 1-216-073-00 | METAL CHIP | 10K | 5% | 1/10W (E80B) |
| R206 | 1-216-065-00 | METAL CHIP | 4.7K | 5% | 1/10W (E80B) |
| R207 | 1-216-109-00 | METAL CHIP | 330K | 5% | 1/10W (E80B) |
| R208 | 1-216-057-00 | METAL CHIP | 2.2K | 5% | 1/10W (E80B) |
| R262 | 1-216-035-00 | METAL CHIP | 270 | 5% | 1/10W |
| R263 | 1-216-067-00 | METAL CHIP | 5.6K | 5% | 1/10W |
| R265 | 1-216-033-00 | METAL CHIP | 220 | 5% | 1/10W |
| R266 | 1-216-051-00 | METAL CHIP | 1.2K | 5% | 1/10W |
| R267 | 1-216-035-00 | METAL CHIP | 270 | 5% | 1/10W |
| R268 | 1-216-097-00 | METAL CHIP | 100K | 5% | 1/10W |
| R269 | 1-216-081-00 | METAL CHIP | 22K | 5% | 1/10W (E80B) |
| R270 | 1-216-081-00 | METAL CHIP | 22K | 5% | 1/10W (E80B) |
| R271 | 1-216-079-00 | METAL CHIP | 18K | 5% | 1/10W |
| R276 | 1-216-073-00 | METAL CHIP | 10K | 5% | 1/10W |
| R801 | 1-216-025-00 | METAL CHIP | 100 | 5% | 1/10W |
| R802 | 1-216-037-00 | METAL CHIP | 330 | 5% | 1/10W |
| R805 | 1-216-610-11 | METAL CHIP | 20 | 0.50% | 1/10W |
| R806 | 1-216-025-00 | METAL CHIP | 100 | 5% | 1/10W |
| R807 | 1-216-025-00 | METAL CHIP | 100 | 5% | 1/10W |
| R811 | 1-216-037-00 | METAL CHIP | 330 | 5% | 1/10W<br>(E80AP, B, IT, VP) |
| R812 | 1-216-025-00 | METAL CHIP | 100 | 5% | 1/10W |
| R815 | 1-216-081-00 | METAL CHIP | 22K | 5% | 1/10W |
| R816 | 1-216-057-00 | METAL CHIP | 2.2K | 5% | 1/10W |
| R817 | 1-216-049-00 | METAL CHIP | 1K | 5% | 1/10W |
| R835 | 1-216-051-00 | METAL CHIP | 1.2K | 5% | 1/10W |
| R836 | 1-216-056-00 | METAL GLAZE | 2K | 5% | 1/10W |
| R838 | 1-216-075-00 | METAL CHIP | 12K | 5% | 1/10W |
| R842 | 1-216-622-11 | METAL CHIP | 62 | 0.50% | 1/10W |
| R843 | 1-216-057-00 | METAL CHIP | 2.2K | 5% | 1/10W |
| R844 | 1-216-061-00 | METAL CHIP | 3.3K | 5% | 1/10W |
| R846 | 1-216-059-00 | METAL CHIP | 2.7K | 5% | 1/10W |
| R847 | 1-216-078-00 | METAL GLAZE | 16K | 5% | 1/10W |
| R856 | 1-216-033-00 | METAL CHIP | 220 | 5% | 1/10W |
| R857 | 1-216-033-00 | METAL CHIP | 220 | 5% | 1/10W |
| R858 | 1-216-065-00 | METAL CHIP | 4.7K | 5% | 1/10W |
| R859 | 1-216-089-91 | METAL GLAZE | 47K | 5% | 1/10W |
| R861 | 1-216-053-00 | METAL CHIP | 1.5K | 5% | 1/10W |
| R862 | 1-216-061-00 | METAL CHIP | 3.3K | 5% | 1/10W |
| R863 | 1-216-047-00 | METAL CHIP | 820 | 5% | 1/10W |
| R901 | 1-216-039-00 | METAL CHIP | 390 | 5% | 1/10W |
| R902 | 1-216-033-00 | METAL CHIP | 220 | 5% | 1/10W |
| R903 | 1-216-065-00 | METAL CHIP | 4.7K | 5% | 1/10W |
| R904 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W |
| R906 | 1-216-077-00 | METAL CHIP | 15K | 5% | 1/10W |
| R907 | 1-216-075-00 | METAL CHIP | 12K | 5% | 1/10W |
| R908 | 1-216-033-00 | METAL CHIP | 220 | 5% | 1/10W |
| R910 | 1-216-025-00 | METAL CHIP | 100 | 5% | 1/10W |
| R913 | 1-216-057-00 | METAL CHIP | 2.2K | 5% | 1/10W |

| Ref. No. | Part No. | Description | | | | Remark |
|---|---|---|---|---|---|---|
| R914 | 1-216-077-00 | METAL CHIP | 15K | 5% | 1/10W | |
| R915 | 1-216-075-00 | METAL CHIP | 12K | 5% | 1/10W | |
| R916 | 1-216-039-00 | METAL CHIP | 390 | 5% | 1/10W | |
| R917 | 1-216-045-00 | METAL CHIP | 680 | 5% | 1/10W | |
| R918 | 1-216-043-00 | METAL CHIP | 560 | 5% | 1/10W | |
| R919 | 1-216-039-00 | METAL CHIP | 390 | 5% | 1/10W | |
| R920 | 1-216-043-00 | METAL CHIP | 560 | 5% | 1/10W | |
| R921 | 1-216-049-00 | METAL CHIP | 1K | 5% | 1/10W | |
| R922 | 1-216-041-00 | METAL CHIP | 470 | 5% | 1/10W | |
| R924 | 1-216-031-00 | METAL CHIP | 180 | 5% | 1/10W | |
| R925 | 1-216-045-00 | METAL CHIP | 680 | 5% | 1/10W | |
| R926 | 1-216-025-00 | METAL CHIP | 100 | 5% | 1/10W | |
| R927 | 1-216-067-00 | METAL CHIP | 5.6K | 5% | 1/10W | |
| R928 | 1-216-071-00 | METAL CHIP | 8.2K | 5% | 1/10W | |
| R929 | 1-216-043-00 | METAL CHIP | 560 | 5% | 1/10W | |
| R966 | 1-216-295-00 | METAL CHIP | 0 | 5% | 1/10W | |

< VARIABLE RESISTOR >

| Ref. No. | Part No. | Description |
|---|---|---|
| RV001 | 1-238-856-11 | RES, ADJ, CERMET 10K |
| RV003 | 1-238-856-11 | RES, ADJ, CERMET 10K |
| RV004 | 1-238-856-11 | RES, ADJ, CERMET 10K |
| RV005 | 1-238-856-11 | RES, ADJ, CERMET 10K |
| RV006 | 1-238-857-11 | RES, ADJ, CERMET 22K |
| RV009 | 1-238-854-11 | RES, ADJ, CERMET 2.2K |
| RV201 | 1-238-852-11 | RES, ADJ, CERMET 470 (E80B) |

< TRANSFORMER >

| Ref. No. | Part No. | Description |
|---|---|---|
| T001 | 1-403-617-11 | COIL, TANK |
| T201 | 1-409-467-11 | COIL (TRAP 7.8K)(E80B) |

< VIBRATOR >

| Ref. No. | Part No. | Description |
|---|---|---|
| X001 | 1-760-118-21 | VIBRATOR, CRYSTAL (4.43MHz) |

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* A-6754-656-A TU-146 BOARD, COMPLETE (E80UX,UY)

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* A-6754-657-A TU-146 BOARD, COMPLETE (E80NC,NP)

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(Ref. NO. 7,000 Series)

< CAPACITOR >

| Ref. No. | Part No. | Description | | | | Remark |
|---|---|---|---|---|---|---|
| C002 | 1-126-233-11 | ELECT | 22uF | 20% | 50V | |
| C003 | 1-124-126-00 | ELECT | 47uF | 20% | 10V | |
| C004 | 1-163-031-11 | CERAMIC CHIP | 0.01uF | | 50V | |
| C006 | 1-163-031-11 | CERAMIC CHIP | 0.01uF | | 50V | |
| C007 | 1-126-101-11 | ELECT | 100uF | 20% | 16V | |
| C009 | 1-164-161-11 | CERAMIC CHIP | 0.0022uF | 10% | 100V | |
| C010 | 1-163-031-11 | CERAMIC CHIP | 0.01uF | | 50V | |
| C011 | 1-124-126-00 | ELECT | 47uF | 20% | 10V | |
| C012 | 1-163-031-11 | CERAMIC CHIP | 0.01uF | | 50V | |
| C013 | 1-124-927-11 | ELECT | 4.7uF | 20% | 100V | |
| C014 | 1-163-009-11 | CERAMIC CHIP | 0.001uF | 10% | 50V | |
| C017 | 1-163-031-11 | CERAMIC CHIP | 0.01uF | | 50V | |
| C018 | 1-124-126-00 | ELECT | 47uF | 20% | 10V | |
| C019 | 1-126-101-11 | ELECT | 100uF | 20% | 16V | |
| C020 | 1-163-031-11 | CERAMIC CHIP | 0.01uF | | 50V | |
| C022 | 1-124-907-11 | ELECT | 10uF | 20% | 50V | |
| C023 | 1-163-031-11 | CERAMIC CHIP | 0.01uF | | 50V | |
| C024 | 1-130-483-00 | MYLAR | 0.01uF | 5% | 50V | (E80NC,NP) |
| C025 | 1-126-101-11 | ELECT | 100uF | 20% | 16V | |
| C026 | 1-124-907-11 | ELECT | 10uF | 20% | 50V | |
| C027 | 1-124-907-11 | ELECT | 10uF | 20% | 50V | |
| C028 | 1-124-907-11 | ELECT | 10uF | 20% | 50V | |
| C029 | 1-124-907-11 | ELECT | 10uF | 20% | 50V | |
| C030 | 1-124-907-11 | ELECT | 10uF | 20% | 50V | (E80NC,NP) |
| C031 | 1-124-907-11 | ELECT | 10uF | 20% | 50V | (E80NC,NP) |
| C036 | 1-124-907-11 | ELECT | 10uF | 20% | 50V | |
| C037 | 1-124-907-11 | ELECT | 10uF | 20% | 50V | |
| C038 | 1-124-907-11 | ELECT | 10uF | 20% | 50V | |
| C039 | 1-124-907-11 | ELECT | 10uF | 20% | 50V | |

< CONNECTOR >

| Ref. No. | Part No. | Description |
|---|---|---|
| CN001 | 1-568-787-11 | PIN, CONNECTOR 10P |
| CN002 | 1-568-788-21 | PIN, CONNECTOR 11P |

< DIODE >

| Ref. No. | Part No. | Description | |
|---|---|---|---|
| D001 | 8-719-800-76 | DIODE | 1SS226 |
| D004 | 8-719-978-94 | DIODE | DTZ30C |
| D051 | 8-719-800-76 | DIODE | 1SS226 |

< IC >

| Ref. No. | Part No. | Description | |
|---|---|---|---|
| IC001 | 8-759-512-95 | IC | TDA8415 (E80NC,NP) |
| IC002 | 8-759-996-43 | IC | RC4558PS |

< JUMPER RESISTOR >

| Ref. No. | Part No. | Description | | | | Remark |
|---|---|---|---|---|---|---|
| JR010 | 1-216-296-00 | METAL CHIP | 0 | 5% | 1/8W | (E80NC,NP) |
| JR011 | 1-216-296-00 | METAL CHIP | 0 | 5% | 1/8W | |
| JR012 | 1-216-296-00 | METAL CHIP | 0 | 5% | 1/8W | |
| JR013 | 1-216-296-00 | METAL CHIP | 0 | 5% | 1/8W | |
| JR014 | 1-216-296-00 | METAL CHIP | 0 | 5% | 1/8W | |
| JR015 | 1-216-296-00 | METAL CHIP | 0 | 5% | 1/8W | (E80UX,UY) |
| JR016 | 1-216-296-00 | METAL CHIP | 0 | 5% | 1/8W | |
| JR017 | 1-216-296-00 | METAL CHIP | 0 | 5% | 1/8W | |

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| JR018 | 1-216-296-00 | METAL CHIP 0 5% 1/8W | |
| JR019 | 1-216-296-00 | METAL CHIP 0 5% 1/8W | |
| JR020 | 1-216-296-00 | METAL CHIP 0 5% 1/8W | |
| JR021 | 1-216-296-00 | METAL CHIP 0 5% 1/8W | (E80UX, UY) |
| JR022 | 1-216-296-00 | METAL CHIP 0 5% 1/8W | (E80NC, NP) |
| JR023 | 1-216-296-00 | METAL CHIP 0 5% 1/8W | (E80NC, NP) |
| JR025 | 1-216-296-00 | METAL CHIP 0 5% 1/8W | (E80UX, UY) |
| JR026 | 1-216-296-00 | METAL CHIP 0 5% 1/8W | (E80NC, NP) |

< COIL >

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| L001 | 1-414-183-41 | INDUCTOR 10uH | |
| L002 | 1-414-189-31 | INDUCTOR 100uH | |
| L003 | 1-414-183-41 | INDUCTOR 10uH | |
| L005 | 1-414-183-41 | INDUCTOR 10uH | |
| L006 | 1-414-183-41 | INDUCTOR 10uH | |
| L007 | 1-414-183-41 | INDUCTOR 10uH | |

< DECODER BLOCK >

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| NCM01 | 1-466-902-11 | DECODER BLOCK, e j(NCA-395A) | (E80UX, UY) |
| NCM01 | 1-466-903-11 | DECODER BLOCK (NCA-389A) | (E80NC, NP) |

< TRANSISTOR >

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| Q001 | 8-729-422-27 | TRANSISTOR 2SD601A-Q | |
| Q002 | 8-729-422-27 | TRANSISTOR 2SD601A-Q | |
| Q003 | 8-729-173-38 | TRANSISTOR 2SA733-K | |
| Q005 | 8-729-422-27 | TRANSISTOR 2SD601A-Q | |
| Q051 | 8-729-303-37 | TRANSISTOR 2SD655-E | |

< RESISTOR >

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| R001 | 1-216-033-00 | METAL CHIP 220 5% 1/10W | |
| R002 | 1-216-049-00 | METAL CHIP 1K 5% 1/10W | |
| R003 | 1-216-049-00 | METAL CHIP 1K 5% 1/10W | |
| R004 | 1-216-075-00 | METAL CHIP 12K 5% 1/10W | |
| R005 | 1-216-049-00 | METAL CHIP 1K 5% 1/10W | |
| R006 | 1-216-071-00 | METAL CHIP 8.2K 5% 1/10W | |
| R007 | 1-216-089-91 | METAL GLAZE 47K 5% 1/10W | |
| R008 | 1-216-025-00 | METAL CHIP 100 5% 1/10W | |
| R010 | 1-216-295-00 | METAL CHIP 0 5% 1/10W | |
| R011 | 1-216-025-00 | METAL CHIP 100 5% 1/10W | |
| R012 | 1-216-037-00 | METAL CHIP 330 5% 1/10W | |
| R013 | 1-216-037-00 | METAL CHIP 330 5% 1/10W | |
| R014 | 1-216-049-00 | METAL CHIP 1K 5% 1/10W | (E80NC, NP) |
| R015 | 1-216-049-00 | METAL CHIP 1K 5% 1/10W | (E80NC, NP) |
| R016 | 1-216-055-00 | METAL CHIP 1.8K 5% 1/10W | (E80NC, NP) |
| R021 | 1-216-049-00 | METAL CHIP 1K 5% 1/10W | (E80UX, UY) |
| R022 | 1-216-049-00 | METAL CHIP 1K 5% 1/10W | (E80UX, UY) |
| R024 | 1-216-041-00 | METAL CHIP 470 5% 1/10W | |
| R025 | 1-216-041-00 | METAL CHIP 470 5% 1/10W | |
| R027 | 1-216-049-00 | METAL CHIP 1K 5% 1/10W | |
| R028 | 1-216-045-00 | METAL CHIP 680 5% 1/10W | |
| R030 | 1-216-295-00 | METAL CHIP 0 5% 1/10W | |
| R031 | 1-216-295-00 | METAL CHIP 0 5% 1/10W | |
| R033 | 1-216-081-00 | METAL CHIP 22K 5% 1/10W | |
| R034 | 1-216-085-00 | METAL CHIP 33K 5% 1/10W | |
| R035 | 1-216-081-00 | METAL CHIP 22K 5% 1/10W | |
| R036 | 1-216-085-00 | METAL CHIP 33K 5% 1/10W | |
| R037 | 1-216-057-00 | METAL CHIP 2.2K 5% 1/10W | (E80NC, NP) |
| R038 | 1-216-071-00 | METAL CHIP 8.2K 5% 1/10W | (E80NC, NP) |
| R039 | 1-216-057-00 | METAL CHIP 2.2K 5% 1/10W | (E80NC, NP) |
| R040 | 1-216-220-00 | METAL GLAZE 8.2K 5% 1/8W | (E80NC, NP) |
| R041 | 1-216-097-00 | METAL CHIP 100K 5% 1/10W | |
| R042 | 1-216-097-00 | METAL CHIP 100K 5% 1/10W | |
| R043 | 1-216-097-00 | METAL CHIP 100K 5% 1/10W | |
| R044 | 1-216-097-00 | METAL CHIP 100K 5% 1/10W | |
| R045 | 1-216-295-00 | METAL CHIP 0 5% 1/10W | |
| R046 | 1-216-295-00 | METAL CHIP 0 5% 1/10W | |
| R051 | 1-216-113-00 | METAL CHIP 470K 5% 1/10W | |
| R052 | 1-216-057-00 | METAL CHIP 2.2K 5% 1/10W | |
| R053 | 1-216-198-91 | METAL GLAZE 1K 5% 1/8W | |

< VARIABLE RESISTOR >

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| RV001 | 1-241-763-11 | RES, ADJ, CARBON 4.7K | (E80NC, NP) |

< TUNER >

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| ⚠TU001 | 1-693-206-11 | TUNER (BTF-3U601) | (E80UX, UY) |
| ⚠TU001 | 1-693-207-11 | TUNER (BTF-3C401) | (E80NC, NP) |

< VIBRATOR >

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| X001 | 1-567-925-11 | VIBRATOR, CRYSTAL (10MHz) | (E80NC, NP) |

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* A-6781-281-A VP-39 BOARD, COMPLETE (E80VP)

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(Ref. NO. 9,000 Series)

< CAPACITOR >

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| C201 | 1-164-004-11 | CERAMIC CHIP 0.1uF 10% 25V | |
| C202 | 1-163-075-00 | CERAMIC CHIP 0.047uF 50V | |
| C204 | 1-163-809-11 | CERAMIC CHIP 0.047uF 10% 25V | |
| C206 | 1-163-989-11 | CERAMIC CHIP 0.033uF 10% 25V | |
| C210 | 1-163-121-00 | CERAMIC CHIP 150PF 5% 50V | |

< CONNECTOR >

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| CN201 | 1-573-824-11 | CONNECTOR, BOARD TO BOARD 10P | |

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| | | < DIODE > | |
| D201 | 8-719-911-19 | DIODE 1SS119 | |
| | | < IC > | |
| IC201 | 8-759-030-60 | IC SDA5642 | |
| IC202 | 8-759-147-30 | IC uPD75004GB-VSX182 | |
| | | < JUMPER RESISTOR > | |
| JR201 | 1-216-296-00 | METAL CHIP 0 5% 1/8W | |
| | | < COIL > | |
| L241 | 1-410-509-11 | INDUCTOR 10uH | |
| | | < RESISTOR > | |
| R201 | 1-216-073-00 | METAL CHIP 10K 5% 1/10W | |
| R202 | 1-216-073-00 | METAL CHIP 10K 5% 1/10W | |
| R203 | 1-216-097-00 | METAL CHIP 100K 5% 1/10W | |
| R204 | 1-216-119-00 | METAL CHIP 820K 5% 1/10W | |
| R205 | 1-216-025-00 | METAL CHIP 100 5% 1/10W | |
| R206 | 1-216-119-00 | METAL CHIP 820K 5% 1/10W | |
| R207 | 1-216-067-00 | METAL CHIP 5.6K 5% 1/10W | |
| R208 | 1-216-121-00 | METAL CHIP 1M 5% 1/10W | |
| R210 | 1-216-057-00 | METAL CHIP 2.2K 5% 1/10W | |
| R211 | 1-216-073-00 | METAL CHIP 10K 5% 1/10W | |
| R212 | 1-216-073-00 | METAL CHIP 10K 5% 1/10W | |
| R213 | 1-216-073-00 | METAL CHIP 10K 5% 1/10W | |
| | | < VIBRATOR > | |
| X201 | 1-577-101-11 | VIBRATOR, CERAMIC (4.19MHz) | |

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MISCELLANEOUS

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| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| 1 | 1-467-387-11 | SWITCH BLOCK, CONTROL (E80AP, UX, UY) | |
| 1 | 1-467-387-21 | SWITCH BLOCK, CONTROL (E80VP) | |
| 1 | 1-467-387-31 | SWITCH BLOCK, CONTROL (E80B) | |
| 1 | 1-467-387-41 | SWITCH BLOCK, CONTROL (E80IT, NC, NP) | |
| 65 | 1-555-110-00 | CABLE, PIN (E80NC, NP, UX, UY) | |
| 260 | 1-543-647-11 | HEAD, FE | |
| 267 | A-6761-129-C | HEAD BLOCK ASSY, ACE | |
| 282 | 1-550-872-11 | DRUM ASSY, ROTARY UPPER (DZR-60-R) | |
| M901 | 1-550-873-11 | LOWER DRUM ASSY DZL-60A-R | |
| M902 | 8-835-489-01 | MOTOR, DC U-26K | |
| M903 | X-3733-302-1 | MOTOR ASSY, CAM | |
| M904 | X-3727-784-1 | MOTOR ASSY | |
| S1 | 1-571-920-11 | SWITCH, ROTARY (CAM ENCODER) | |

ACCESSORIES & PACKING MATERIALS

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| Ref. No. | Part No. | Description | Remark |
|---|---|---|---|
| ⚠ | 1-574-056-11 | CORD, POWER (E80VP) | |
| ⚠ | 1-575-131-11 | CORD, POWER (E80AP, B, IT, NC, NP) | |
| | 1-696-593-11 | CORD, CONNECTION (PAL) (E80AP, IT, NC, NP, UX, UY, VP) | |
| | 1-696-861-11 | CORD, CONNECTION | |
| | 1-696-905-11 | CORD, CONNECTION (E80B) | |
| ⚠ | 1-590-865-11 | CORD, POWER (E80UX, UY) | |
| | 3-695-308-01 | DRIVER, VOLUME | |
| * | 3-701-634-00 | BAG, POLYETHYLENE | |
| | 3-757-944-11 | MANUAL, INSTRUCTION (ENGLISH) (E80UX, UY) | |
| | 3-757-944-41 | MANUAL, INSTRUCTION (DUTCH) (E80AP, NC) | |
| | 3-757-944-51 | MANUAL, INSTRUCTION (FRENCH) (E80B) | |
| | 3-757-944-61 | MANUAL, INSTRUCTION (SPANISH) (E80NP) | |
| | 3-757-944-71 | MANUAL, INSTRUCTION (FRENCH, GERMAN) (E80NC, VP) | |
| | 3-757-944-81 | MANUAL, INSTRUCTION (SWEDISH, PORTUGUESE, DANISH) (E80NC) | |
| | 3-757-944-91 | MANUAL, INSTRUCTION (ITALIAN) (E80IT, VP) | |
| * | 3-957-486-01 | CUSHION (UPPER) | |
| * | 3-957-487-01 | CUSHION (LOWER) | |
| * | 3-957-492-01 | INDIVIDUAL CARTON (E80AP, IT, NC, NP, VP) | |
| * | 3-957-492-11 | INDIVIDUAL CARTON (E80B) | |
| * | 3-957-492-21 | INDIVIDUAL CARTON (E80UX, UY) | |
| * | 3-957-492-31 | INDIVIDUAL CARTON (E80NC, NP) | |
| | 3-957-513-11 | RING, SHUTTLE (E80B) | |
| | X-3943-637-1 | BUTTON ASSY (E80B) | |

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## HARDWARE LIST

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| | | |
|---|---|---|
| #1 | 7-685-648-79 | SCREW +BVTP 3X12 TYPE2 |
| #2 | 7-685-782-01 | SCREW +PTT 2X5 (S) |
| #3 | 7-624-106-04 | STOP RING 3.0, TYPE-E |
| #4 | 7-682-645-01 | SCREW +PS 3X4 |
| #5 | 7-685-647-79 | SCREW +BVTP 3X10 TYPE2 IT-3 |
| #6 | 7-682-548-04 | SCREW +P 3X8 |
| #7 | 7-685-646-79 | SCREW +BVTP 3X8 TYPE2 N-S |
| #8 | 7-621-732-08 | SCREW |
| #10 | 7-628-254-05 | SCREW +PS 2.6X5 |
| #11 | 7-624-102-04 | STOP RING 1.5, TYPE E |
| #13 | 7-682-546-04 | SCREW +P 3X5 |

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

# SECTION 6
# INTERFACE, IC PIN FUNCTION DESCRIPTION

## 6-1. SYSTEM CONTROL – VIDEO BLOCK INTERFACE

| Signal | Pin No. | I/O | STOP/ FF/ REW | TAPE THREAD-ING | TAPE UNTHREAD-ING | PB | PB-PAUSE | SLOW | ×2 | CUE | REVIEW | REC | REC-PAUSE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $\overline{\text{V-PB}}$ | MA-181<br>IC203 (95) | O | H | H | H | L | L | L | L | L | L | H | H |
| HEAD CONT | MA-181<br>IC203 (85) | O | L | L | L | L | HI-Z (2.5 V) | *1 | *10 | *5 | *5 | L | L |
| RF SW P (SW30) | MA-181<br>IC203 ① | O | *2 | *2 | *2 | *2 | *2 | *2 | *2 | *2 | *2 | *2 | *2 |
| Q VD/V MUTE | MA-181<br>IC203 ② | O | L | L | L | *3 | *4 | *4 | *4 | *4 | *4 | L | L |
| $\overline{\text{SP}}$ | MA-181<br>IC203 (91) | O | *6 | *6 | *6 | *7 | *7 | *7 | *7 | *7 | *7 | *6 | *6 |
| ENV GAIN | MA-181<br>IC203 (92) | O | *11 | *11 | *11 | *7 | *7 | *7 | *7 | *7 | *7 | *11 | *11 |
| REC-P | MA-181<br>IC203 ⑤ | O | L | L | L | L | L | L | L | L | L | L | H |
| REC | MA-181<br>IC203 (98) | O | L | L | L | L | L | L | L | L | L | H | H |
| V SYNC | MA-181<br>IC203 (66) | I | *8 | *8 | *8 | *8 | *8 | *8 | *8 | *8 | *8 | *8 | *8 |
| OSD MUTE | MA-181<br>IC203 (71) | O | *9 | *9 | *9 | *9 | *9 | *9 | *9 | *9 | *9 | *9 | *9 |
| E TAPE | MA-181<br>IC203 ㊾ | O | L | L | L | *12 | *12 | *12 | *12 | *12 | *12 | L | L |
| $\overline{\text{NTSC}}$ | MA-181<br>IC203 ㉗ | O | H | H | H | H | H | H | H | H | H | H | H |
| $\overline{\text{3.58NTSC}}$ | MA-181<br>IC203 ㉖ | O | H | H | H | H | H | H | H | H | H | H | H |
| JOG | MA-181<br>IC203 (97) | O | L | L | L | L | H | H | H | H | H | L | L |
| ORC SETTEI | MA-181<br>IC203 (76) | O | L | L | L | L | L | L | L | L | L | *13 | *13 |

*1. Foward slow mode: "HI-Z (2.5 V)" in tape stop, "L" in tape running (approx. 40 msec.).
Foward slow mode: "HI-Z (2.5 V)" in tape stop, "H" in tape running SP mode (approx. 40 msec.).
"L" in tape running EP mode (approx. 40 msec.).
*2. Synchronized with drum rotation. 25 Hz 50% duty pulse.
*3. Normally "L". "H" when CTL signal is not generated.
*4. V period "H" pulse.
*5. "H" in SP mode. "L" in LP/EP mode.
*6. Selected by REC mode. SP mode: "L".
*7. Selected by tape recording mode.

| Model / Signal | SP | LP | EP |
|---|---|---|---|
| $\overline{\text{SP}}$ (91) | L | H | H |
| ENV GAIN (92) | L | L | H |

*8. Composite Sync signal (positive).
*9. "H" when menu screen or blue back screen.
*10. "HI-Z (2.5 V)" in LP/EP mode. "H" in SP mode.
*11. Selected by REC mode: "H" EP mode.
*12. "L" when APC is off. "H" when APC is ON and "HG tape" is used.
*13. "H" during APC measurement.

## 6-2. SYSTEM CONTROL – SERVO PERIPHERAL CIRCUIT INTERFACE

| Signal | Pin No. | I/O | STOP | FF | REW | TAPE THREAD-ING | TAPE UNTHREAD-ING | PB | PB-PAUSE | SLOW | ×2 | CUE | REVIEW | REC | PEC-PAUSE | PB INDEX WRT/ERS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| REC CTL | MA-181<br>IC203 ⑦ | O | *1 | *1 | *1 | *1 | *1 | *1 | *1 | *1 | *1 | *1 | *1 | *1 | *1 | |
| $\overline{\text{CAP STOP}}$ | MA-181<br>IC203 ㊳ | O<br>(O.D) | L | HI-Z<br>(O.D) | HI-Z<br>(O.D) | HI-Z<br>(O.D) | HI-Z<br>(O.D) | HI-Z<br>(O.D) | L | *3 | HI-Z<br>(O.D) | HI-Z<br>(O.D) | HI-Z<br>(O.D) | HI-Z<br>(O.D) | L | |
| STEP PLS | MA-181<br>IC203 ㉔ | O | L | L | L | L | L | L | L | *2 | L | L | L | L | L | |
| CTL REC | MA-181<br>IC203 ㉘ | O | L | L | L | L | L | L | L | L | L | L | L | H | H | H |
| INDEX | MA-181<br>IC203 ㉚ | O | L | L | L | L | L | L | L | L | L | L | L | L | L | H |
| PB CTL | MA-181<br>IC203 (61) | I | H/L | *6 | *6 | | | *1 | H/L | *2 | *6 | *6 | *6 | *1 | H/L | |
| VD CTL | MA-181<br>IC203 (77) | I | H/L | *6 | *6 | | | *1 | H/L | *2 | *6 | *6 | *6 | *1 | H/L | |
| DRUM PG | MA-181<br>IC203 (68) | I | *4 | *7 | *7 | *5 | *5 | *7 | *7 | *7 | *7 | *7 | *7 | *7 | *7 | |
| DRUM FG | MA-181<br>IC203 (69) | I | H/L | *8 | *8 | *5 | *5 | *8 | *8 | *8 | *8 | *8 | *8 | *8 | *8 | |
| CAP FG | MA-181<br>IC203 (70) | I | H/L | *6 | *6 | *5 | *5 | *6 | H/L | *9 | *6 | *6 | *6 | *6 | H/L | |
| CAP DA | MA-181<br>IC203 (73) | O | *10 | *10 | *10 | *10 | *10 | *11 | *10 | *10 | *11 | *11 | *11 | *11 | *10 | |
| DRUM DA | MA-181<br>IC203 (74) | O | *12 | *12 | *12 | *12 | *12 | *12 | *12 | *12 | *12 | *12 | *12 | *12 | *12 | |
| CTL STEP | MA-181<br>IC203 ㉙ | O | L | L | L | L | L | L | L | *13 | L | L | L | L | L | |

*1. 30 Hz or 25 Hz pulse.
*2. Pulse at tape running.
*3. Reverse logic pulse of STEP PLS.
*4. "L" when drum rotation stop.
*5. Unstable period pulse.
*6. Pulse of period in proportion to tape speed.
*7. 30 Hz or 25 Hz pulse.
*8. 360 Hz or 300 Hz or 180/150 Hz pulse.
*9. Pulse at tape running.
*10. Approx. 2 msec period "H" or "L" pulse.
*11. Approx. 1.5 msec period "H" or "L" pulse.
*12. Approx. 3 msec period "H" or "L" pulse.
*13. "H" when FWD direction STEP drive.

## 6-3. SYSTEM CONTROL – MECHANISM BLOCK INTERFACE

| Signal | Pin No. | I/O | HI-SPEED REW | EJECTED | CASSETTE LOADING | CASSETTE UNLOAD-ING | TAPE THREAD-ING | TAPE UNTHREAD-ING | STOP | FF | REW | PB | PB-PAUSE | SLOW | ×2 | CUE | REVIEW | REC | PEC-PAUSE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CAM *1 | MA-181<br>IC203 ⑫ | O | L | L | L | L | H | H | L | L | L | L | L | L | L | L | L | L | L |
| LOAD | MA-181<br>IC203 ⑭ | O | L | L | H | H | L | L | L | L | L | L | L | L | L | L | L | L | L |
| CW/CCW | MA-181<br>IC203 ⑬ | O |  |  | H | L | H | L |  |  |  |  |  |  |  |  |  |  |  |
| MODE 1 | MA-181<br>IC203 (58) | I | H | L | L | L | H | H | L | H | H | H | L | L | H | H | H | H | L |
| MODE 2 | MA-181<br>IC203 (57) | I | L | H | H | H | H | H | L | L | L | L | H | H | L | L | L | L | H |
| MODE 3 | MA-181<br>IC203 (56) | I | H | H | H | H | L | L | L | L | L | H | H | H | H | H | L | H | H |
| MODE 4 | MA-181<br>IC203 (55) | I | H | H | H | H | H | H | L | H | H | L | L | L | L | L | L | L | L |
| REC PRF | MA-181<br>IC203 ⑮ | I | *2 | L | *2 | *2 | *2 | *2 | *2 | *2 | *2 | *2 | *2 | *2 | *2 | *2 | *2 | *2 | *2 |
| C-UP/DOWN | MA-181<br>IC203 ⑯ | I | L | H | H→L | L→H | L | L | L | L | L | L | L | L | L | L | L | L | L |
| TREEL FG | MA-181<br>IC203 (64) | I | *3 | H/L | H/L | H/L | H/L | H/L | H/L | *3 | *3 | *3 | H/L | *3 | *3 | *3 | *3 | *3 | H/L |
| SREEL FG | MA-181<br>IC203 (63) | I | *3 | H/L | H/L | H/L | *3 | *3 | H/L | *3 | *3 | *3 | H/L | *3 | *3 | *3 | *3 | *3 | H/L |
| END LED | MA-181<br>IC203 ㉜ | O<br>(O.D) | *4 | *4 | *4 | *4 | *4 | *4 | *4 | *4 | *4 | *4 | *4 | *4 | *4 | *4 | *4 | *4 | *4 |
| CAP TRQ 1 | MA-181<br>IC203 ㉞ | O<br>(O.D) | *1 |  |  |  |  |  |  | *1 | *1 |  |  | *6 |  | *1 | *1 |  |  |
| CAP TRQ 2 | MA-181<br>IC203 ㉝ | O<br>(O.D) |  |  |  |  |  |  |  | *1 | *1 |  |  |  |  |  |  |  |  |
| CAP RVS | MA-181<br>IC203 ⑫ | O | H | H |  |  | L | H | H/L | L | H | L | L | L/*5 | L | L | H | L | L |
| T SENS | MA-181<br>IC203 ⑰ | I | *7 | *4 | *4 | *4 | *7 | *7 | *7 | *7 | *7 | *7 | *7 | *7 | *7 | *7 | *7 | *7 | *7 |
| S SENS | MA-181<br>IC203 ⑱ | I | *7 | *4 | *4 | *4 | *7 | *7 | *7 | *7 | *7 | *7 | *7 | *7 | *7 | *7 | *7 | *7 | *7 |

*1. "L" when mechanism mode transition.

*2. "L" when erasing protection tab is bent, "H" when not bent.

*3. Pause of period in proportion to reel rotating speed.

*4. Approx. 2 msec period "H" pulse.

*5. Pulse at tape running.

*6. "L" when tape running and CAP RVS is "H".

*7. Normally "L". 2 msec period "H" pulse when tape top or tape end is detected.

## 6-4. SYSTEM CONTROL – SYSTEM CONTROL PERIPHERAL CIRCUIT INTERFACE

| Signal | Pin No. | I/O | I/O level |
|---|---|---|---|
| $\overline{\text{COSMO·RESET}}$ | MA-181<br>IC203 ㊵ | I | Normally "H". "L" when service interruption is detected or restored. |
| $\overline{\text{COSMO·CS}}$ | MA-181<br>IC203 ㊹ | I | Chip select signal from timer microprocessor. V period "L" pulse. |
| SI•BUS | MA-181<br>IC203 ㊺ | I | Serial communication data from timer microprocessor. V period "L" pulse. |
| SO•BUS | MA-181<br>IC203 ㊻ | O | Serial communication data to timer microprocessor. V period "L" pulse. |
| S CLK | MA-181<br>IC203 ㊼ | I | Serial communication clock with timer microprocessor. V period "L" pulse. |

## 6-5. SYSTEM CONTROL – AUDIO BLOCK INTERFACE

| Signal | Pin No. | I/O | STOP/ FF/ REW | TAPE LOADING | TAPE UNLOAD-ING | PB | PB• PAUSE | SLOW | ×2 | CUE | REVIEW | REC | REC• PAUSE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AF ENVELOP | MA-181<br>IC203 (61) | I | AF RF envelope signal input terminal for automatic tracking. | | | | | | | | | | |
| NA PB | MA-181<br>IC203 ⑪ | O | L | L | L | H | H | H | H | H | H | L | L |
| A MUTE | MA-181<br>IC203 ㊲ | O<br>(O.D) | L | L | L | *4 | H | H | H | H | H | L | L |
| $\overline{\text{SP}}$ | MA-181<br>IC203 (91) | O | *2 | *2 | *2 | *3 | *3 | *3 | *3 | *3 | *3 | *2 | *2 |
| NA REC·$\overline{\text{P}}$ | MA-181<br>IC203 ⑩ | O | L | L | L | L | L | L | L | L | L | H | L |
| AF REC·$\overline{\text{P}}$ | MA-181<br>IC203 ④ | O | L | L | L | L | L | L | L | L | L | H | L |
| AF SWP | MA-181<br>IC203 (100) | O | *1 | *1 | *1 | *1 | *1 | *1 | *1 | *1 | *1 | *1 | *1 |
| AF SW POSITION | MA-181<br>IC203 (51) | I | Input terminal for AF switching position adjustment. | | | | | | | | | | |
| FULL $\overline{\text{ERS}}$ | MA-181<br>IC203 ㊱ | O<br>(O.D) | H | H | H | H | H | H | H | H | H | L | H |

*1. 30 Hz 50% duty pulse approx. 5 msec delayed from RF SW P.
*2. Selected by REC mode selector. SP mode: "L".
*3. Selected by tape recording mode. SP mode: "L".
*4. Nomaly "L", "H" when there is not CTL pulse.

## 6-6. SYSTEM CONTROL AND RF MODULATOR – INPUT SELECTION BLOCK INTERFACE

| Signal | Pin No. | I/O | I/O level |
|---|---|---|---|
| LINE 1 | MA-181<br>IC203 (79) | O | *1. Input select control signal. |
| LINE 2 | MA-181<br>IC203 (82) | O | |

*1.

| Input / Signal | Tuner | LINE 1 | LINE 2 |
|---|---|---|---|
| LINE 1 (79) | L | H | L |
| LINE 2 (82) | L | L | H |

# 6-7. SERVO/SYSTEM CONTROL MICROPROCESSOR PIN FUNCTION
# (MA-181 BOARD IC203 CXP80732-011Q)

| Pin No. | Pin Name | I/O | Function |
|---|---|---|---|
| 1 | RF SWP | O | Video switching pulse output |
| 2 | Q VD | O | Quasi VD pulse output |
| 3 | Q HD ENBL | O | Quasi HD voltage level control |
| 4 | AF REC $\overline{P}$ | O | "H" output when hi-fi audio REC |
| 5 | RECP | O | "H" output when video REC•PAUSE |
| 6 | FE ON | O | Flaying erase ON/OFF (SLV-920HF) |
| 7 | REC CTL | O | REC CTL output |
| 8 | INT VD | O | Internal VD signal. Not used |
| 9 |  | O | Not used |
| 10 |  | O | Not used |
| 11 | NA PB | O | "H" when normal audio playback |
| 12 | CAM | O | CAM motor select |
| 13 | CW | O | Clockwise/counterclockwise signal output |
| 14 | LOAD | O | Loading motor select |
| 15 | CIN/REC PRF | I | Erasing protection tab, cassette IN detection input |
| 16 | C DOWN | I | Cassette up/down detection input |
| 17 | T SENS | I | Take up end sensor input |
| 18 | S SENS | I | Supply end sensor input |
| 19 | MOD CONT | O | RF modulator ON/OFF control |
| 20 | AV CONT | O | Euro connector pin ⑪ control |
| 21 | MESECAM | I | ME SECAM input |
| 22 | SECAM | I | SECAM input |
| 23 | VPB | O | VPB reverse |
| 24 | STEP PLS | O | "H" when capstan step drive |
| 25 | 3.58/4.43 NTSC | O | "L" |
| 26 | $\overline{3.58\ NTSC}$ | O | "H" |
| 27 | $\overline{NTSC}$ | O | "H" |
| 28 | E-TAPE | O | "H" when HG tape using |
| 29 | BS BILING | O | "H" when BS bilingual. Not used |
| 30 | C+CONT | O | CANAL + control. |
| 31 |  | O | Not used |
| 32 | END LED | O | END sensor LED drive output |
| 33 | CAP TPQ2 | O | Capstan current control. "L" when FF/REW ➡ stop |
| 34 | CAP TPQ1 | O | Capstan current control. "L" when slow down |
| 35 | PAL | O | "H" |
| 36 | $\overline{FULL\ ERS}$ | O | "L" when full erase head operation |
| 37 | A MUTE | O | Audio MUTE output |
| 38 | $\overline{CAP\ STOP}$ | O | Capstan STOP signal output |
| 39 | MP | I | Fixed at "L" level |
| 40 | $\overline{COSMO\ RST}$ | I | System reset inout |
| 41 |  |  | GND |
| 42 | XTAL |  | System clock 12 MHz |
| 43 | EXTAL |  |  |
| 44 | $\overline{COSMO\ CS}$ | I | Chip select signal |
| 45 | SI0 | I | Signal for serial communication |
| 46 | SO0 | O |  |
| 47 | SCLK | I |  |
| 48 | L METER | O | Not used |
| 49 | R METER | O | Not used |

| Pin No. | Pin Name | I/O | Function |
|---|---|---|---|
| 50 | NTPB SW | I | Not used |
| 51 | AF SW POSI | I | VR input for hi-fi switching pulse position adjustment |
| 52 | AVss |  | GND |
| 53 | AVREF |  | AD port reference input. UNSW 5 V |
| 54 | AVDD |  | UNSW 5 V |
| 55 | MODE4 | I | Mechanism section CAM encoder input |
| 56 | MODE3 | I |  |
| 57 | MODE2 | I |  |
| 58 | MODE1 | I |  |
| 59 | DEW | I | DEW sensor input. Not used |
| 60 | RF ENV | I | Video RF envelope input |
| 61 | AF ENV | I | hi-fi audio RF envelope input |
| 62 | RF SW POSI | I | VR input for RF switching position adjustment |
| 63 | SREEL FG | I | S reel sensor input |
| 64 | TREEL FG | I | T reel sensor input |
| 65 | NT JUDGE | I | Not used |
| 66 | V SYNC | I | Composite sync input |
| 67 | PB CTL | I | Playback CTL input |
| 68 | DRM PG | I | Drum PG input |
| 69 | DRM FG | I | Drum FG input |
| 70 | CAP FG | I | Capstan FG input |
| 71 | OSD MUTE | O | "H" when blue back |
| 72 |  | O | Not used |
| 73 | CAP D/A | O | Capstan error D/A output |
| 74 | DRM D/A | O | Drum error D/A output |
| 75 | $\overline{EP}$ | O | "L" when EP mode REC |
| 76 | ORC SETTEI | O | "H" when ORC measurement |
| 77 | VD CTL | I | Playback CTL input |
| 78 | AMS IN | I | Not used |
| 79 | LINE1 | O | Video/audio input select signal |
| 80 | 1 | O | Expansion port for serial communication |
| 81 | SCK1 | O |  |
| 82 | LINE2 | O | Video/audio input select signal |
| 83 | $\overline{NA\ REC\ P}$ | I/O | "H" when recording normal audio |
| 84 | CAP RVS | I/O | Capstan reverse signal output |
| 85 | HEAD CONT | I/O | Head select control |
| 86 |  | I | Not used |
| 87 |  | O | Not used |
| 88 |  |  | GND |
| 89 |  |  | UNSW 5 V |
| 90 |  |  | Connected to UNSW 5 V |
| 91 | $\overline{SP}$ | O | "L" when SP mode |
| 92 | ENV GAIN | O | RF envelope gain control |
| 93 | CTL STEP | O | CTL amp step control |
| 94 | CTL REC | O | CTL amp recording inhibition |
| 95 | $\overline{VPB}$ | O | "L" when video playback |
| 96 | CTL INDEX | O | CTL amp index control |
| 97 | JOG | O | "H" when trick play mode |
| 98 | REC | O | Rise up signal of head amp recording power |
| 99 | LP HEAD | O | (PAL) Head select control |
| 100 | AF SWP | O | hi-fi switching pulse output |

## 6-8. TIMER, TUNER, MODE CONTROL MICROPROCESSOR PIN FUNCTION
## (PT-95 BOARD IC401 MB89095-155/MB89096-119)

| Pin No. | Pin Name | I/O | Function |
|---|---|---|---|
| 1 | CL1 | | Connected to oscillator for clock |
| 2 | CL0 | | Connected to oscillator for clock |
| 3 | MOD0 | | |
| 4 | MOD1 | | |
| 5 | X0 | | Connected to main oscilltor |
| 6 | X1 | | Connected to main oscilltor |
| 7 | Vss | | |
| 8 | $\overline{\text{RESET}}$ | I | Reset signal in |
| 9 | FF | O | FF LED |
| 10 | REW | O | REW LED |
| 11 | H-S-REW | O | HI-SPEED REW LED |
| 12 | B. LIGHT CONT | O | LCD back light ON/OFF control signal |
| 13 | | | Not used |
| 14 | $\overline{\text{LCD CS}}$ | O | LCD driver chip select signal |
| 15 | $\overline{\text{COSMO RESET}}$ | O | System controller reset signal |
| 16 | $\overline{\text{CC CS}}$ | O | Character generator chip select signal |
| 17 | $\overline{\text{POWER FAIL}}$ | I | Power failure detect sgnal in |
| 18 | $\overline{\text{V SYNC}}$ | I | V sync. signal in |
| 19 | POWER CONT | O | Power ON/OFF control signal |
| 20 | $\overline{\text{COSMO CS}}$ | O | System controller chip select signal |
| 21 | H DET | I | Video signal detect signal in |
| 22 | C+DET | I | CANAL + det. signal in |
| 23 | SCL | I/O | $I^2C$ bus clock |
| 24 | SDA | I/O | $I^2C$ bus data |
| 25 | $\overline{\text{PAUSE}}$ | O | PAUSE LED |
| 26 | $\overline{\text{TIMER}}$ | O | TIMER RED |
| 27 | $\overline{\text{REC}}$ | O | REC RED |
| 28 | CMOD | | |
| 29 | TA MUTE | O | Tuner audio mute control signal |
| 30 | C+CLK | O | Clock for CANAL + control |
| 31 | C+DATA | O | Data for CANAL + control |
| 32 | SIRCS IN | I | SIRCS signal in |
| 33 | PLL CLOCK | O | Tuner clock signal |
| 34 | PLL DATA | O | Tuner data signal |
| 35 | PLL ENABLE | O | Tuner enable signal |
| 36 | PDC DET | I | PDC det. in |
| 37 | $\overline{\text{VPS/PDC RST}}$<br>(AP. UX. UY. VP)<br>SYS1 (B) | O | VPS, PDC microcomputer reset<br>Tuner system select 1 |
| 38 | $\overline{\text{VPS/PDC CS}}$<br>(AP. UX. UY. VP)<br>SYS2 (B) | O | VPS, PDC microcomputer chip select<br>Tuner system select 2 |
| 39-52 | N. C. | | |
| 53 | V1dp | | |
| 54-57 | N. C. | | |
| 58 | Vss | | |
| 59-66 | N. C. | | |
| 67 | Vcc | | |
| 68-74 | N. C. | | |
| 75 | $\overline{\text{EDS CS}}$ | O | EDS microcomputer chip select |
| 76 | POWER CONT 2 | O | Power supply control signal for EDS |
| 77 | SO BUS | I | Serial data input |
| 78 | SI BUS | O | Serial deatà output |
| 79 | S CLK | O | Clock for serial communication |
| 80 | MEM CS | O | $E^2$ PROM chip select signal |
| 81 | MEM CLK | O | $E^2$ PROM clock |
| 82 | MEM DATA | O | $E^2$ PROM data |
| 83 | AVss | | |
| 84 | AFT | I | Tuner AFT input |
| 85 | | | Not used |
| 86 | A/D2 | I | Key reading A/D input |
| 87 | A/D3 | I | Key reading A/D input |
| 88 | A/D4 | I | Key reading A/D input |
| 89 | A/D5 | I | Key reading A/D input |
| 90 | A/D6 | I | Key reading A/D input |
| 91 | A/D7 | I | Key reading A/D input |
| 92 | AVcc | | |
| 93 | FWD | O | Forward playback LED |
| 94 | DEST 1 | I | Destination discriminating A/D input |
| 95 | DEST 2 | I | Destination discriminating A/D input |
| 96 | RVS | O | Reverse playback LED |
| 97 | – | | |
| 98 | B. L. LED | O | LCD back light LED control output |
| 99 | BUZZER | O | Buzzre out |
| 100 | Vcc | | |

# SECTION 7
# ADJUSTMENTS

**During the adjustment, see the Parts Arrangement Diagram for adjustments on Page 7-7.**

## 7-1. MECHANICAL ADJUSTMENTS

Refer to the SERVICE MANUAL of VHS MECHANICAL ADJUSTMENT Ⅱ.

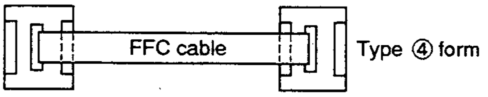
## 7-2. ELECTRICAL ADJUSTMENTS

### 2-1. PRE-ADJUSTMENT PREPARATIONS

Necessary items and indications for total adjustment of electric circuit of this machine will be described in this chapter.

### 2-1-1. Instruments to be Used

1) Color TV
2) Oscilloscope 1 or 2 phenomena, band more than 30 MHz, delay mode, as provided.
3) Frequency counter (min. 8 digits)
4) PAL pattern generator
5) Digital voltmeter
6) Audio level meter
7) Audio generator
8) Attenuator
9) Alignment tape
   Part Code: H7099052H (MH-2)
10) Extension cables (See page 7-2 for using location)


FFC cable
Type ④ form

① CG-20 (CN401) ↔ PT-96 (CN405)
(13 pins J-6090-045-A)
② HF-34 (CN101) ↔ MA-181 (CN406)
(11 pins J-6090-047-A)
③ HF-34 (CN102) ↔ MA-181 (CN405)
(11 pins J-6090-047-A)
④ RV-33 (CN001) ↔ MA-181 (CN303)
(14 pins J-6090-044-A)
⑤ RV-33 (CN002) ↔ MA-181 (CN304)
(20 pins J-6090-043-A)

### 2-1-2. Connection

Unless otherwise specified, connect and adjust the measuring instruments as shown in the following diagram.

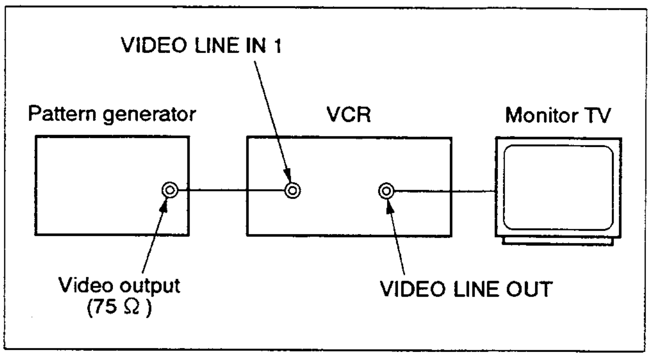

VIDEO LINE IN 1
Pattern generator
VCR
Monitor TV
Video output
(75 Ω)
VIDEO LINE OUT

*Fig. 7-2-1.*

### 2-1-3. Set-up Adjustment

In this adjustment, PAL pattern generator is connected with LINE 1 input signal terminal. When check to tuner, connected AERIAL terminal. Check that the amplitudes of video signal SYNC signal, of picture portions, and of burst signals are flat at approximately 0.3, 0.7 and 0.3 V, respectively, and that the level ratio of the burst sigal and "red" signal are 0.30 : 0.66. Fig. 7-2. shows video signals (color bars) used in adjusting the video section.

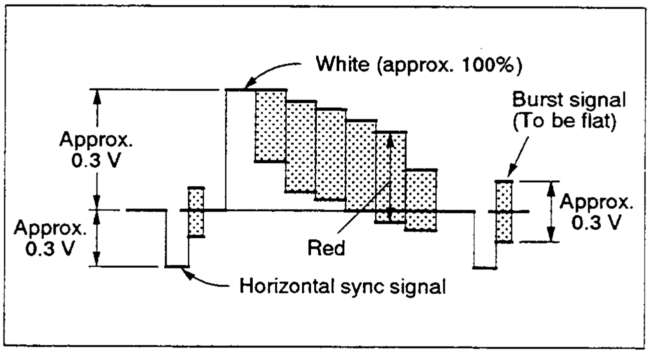

White (approx. 100%)
Burst signal
(To be flat)
Approx.
0.3 V
Approx.
0.3 V
Approx.
0.3 V
Red
Horizontal sync signal

*Fig. 7-2-2.*

### 2-1-4. Alignment Tape (MH-2)

| | Time | Video signal | Audio signal |
|---|---|---|---|
| 1 | 10 minutes | Stair-step | 6 kHz |
| 2 | 5 minutes | — | 3 kHz |
| 3 | 10 minutes | Color bar | 1 kHz |
| 4 | 3 minutes | RF sweep | — |

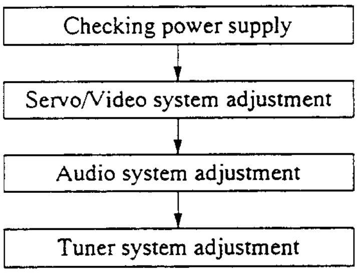
### 2-1-5. Specified I/O Level and Impedance

**Input/output terminal**

Video inputs LINE IN : phono jack
EURO-AV : 21-pin (Pin ⑳ ) 1 Vp-p, 75 Ω , unbalanced, sync negative
Audio inputs LINE IN : phono jacks
47 kΩ , − 7.5 dBs (0 dBs = 0.775 Vrms)
EURO-AV : 21-Pin (Pin ② and ⑥ )
More than 10 kΩ , − 4 dBs
Video outputs LINE OUT : phono jack
EURO-AV : 21-pin (Pin ⑲ ) 1 Vp-p, 75 Ω , unbalanced, sync negative
Audio outputs LINE OUT : phono jacks
− 7.5 dBs at load impedance 47 kΩ
Output impedance : less than 10 kΩ
EURO-AV : 21-Pin (Pin ① and ③ )
Output impedance : less than 1 kΩ
− 4 dBs with 10 kΩ load

### 2-1-6. Adjusting Sequence

Make the electrical adjustment in the following sequence.


Checking power supply
Servo/Video system adjustment
Audio system adjustment
Tuner system adjustment

### 2-2.POWER SUPPLY CHECK (PT-96 BOARD)

| Mode | E-E |
|---|---|
| Measuring Instrument | Digital voltmater |
| UNSW 5.0 V check | |
| Measurement Point | Pin ⑭ of CN401 |
| Specified Value | 5.3 ± 0.2 Vdc |
| MTR 12 V check | |
| Measurement Point | Pin ⑤ of CN402 |
| Specified Value | 12.4 ± 0.5 Vdc |
| DC 42 V check | |
| Measurement Point | C187 ⊕ side |
| Specified Value | 42.0 ± 3.0 Vdc |
| UNSW − 8 V check | |
| Measurement Point | Pin ⑨ of CN401 |
| Specified Value | − 9.1 ± 0.8 Vdc |
| AN 12 V check | |
| Measurement Point | Pin ⑧ of CN401 |
| Specified Value | 12.0 ± 0.3 Vdc |
| SW 9 V check | |
| Measurement Point | Pin ⑮ of CN401 |
| Specified Value | 9.0 ± 0.3 Vdc |

**Checking Method:**

1) Confirm that each voltage meets its specified value.

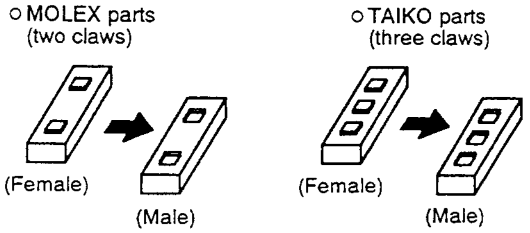
### 2-3. SERVO/VIDEO SYSTEM ADJUSTMENT

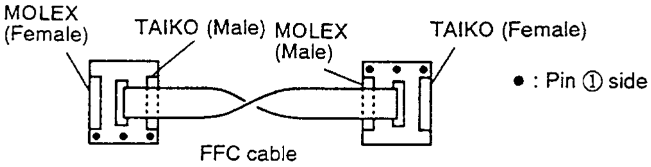
- **NOTE ON REPAIRING RV-33 BOARD**

  [Servicing Jig]
  MA-181 ↔ RV-33 Exension cable.
  ⓐ 14 pins (J-6090-044-A) CN001 ↔ CN303
  ⓑ 20 pins (J-6090-043-A) CN002 ↔ CN304

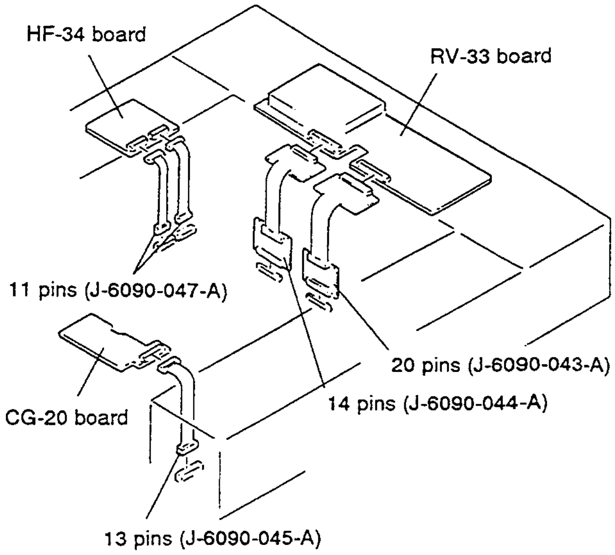
① There are two types of the connectors between MA-181 and RV-33 boards according to the manufacturing companies (TAIKO or MOLEX). They are not interchangeable.

② Servicing jigs are for common use.
When using it, please be sure to confirm the form of connectors.


○ MOLEX parts
(two claws)
○ TAIKO parts
(three claws)
(Female)
(Male)
(Female)
(Male)


MOLEX
(Female)
TAIKO (Male)
MOLEX
(Male)
TAIKO (Female)
● : Pin ① side
FFC cable

- EXTENSION CABLE USING LOCATION
  (See page 7-1 for details of extension cables.)


HF-34 board
RV-33 board
11 pins (J-6090-047-A)
20 pins (J-6090-043-A)
14 pins (J-6090-044-A)
CG-20 board
13 pins (J-6090-045-A)

### 2-3-1. Switching Position Adjustment (MA-181 Board)

**Purpose:**

Adjust the interval between A ch and B ch of tape playback output.

Improve the interchangeability with other tapes and sets.

When it is out of order, the interval appears on the screen, the screen is disturbed.

| | |
|---|---|
| Mode | PB |
| Signal | Alignment tape |
| Measurement Point | CH1: CJ701 VIDEO LINE OUT (IO-50 board)<br>CH2: Pin ⑳ of CN304 (RF SWP) |
| Measuring Instrument | Oscilloscope |
| Adjusting Element | RV202 |
| Specified Value | 6.5 ± 0.5 H (416 ± 32 μsec) |

**Adjusting Method:**

1) Adjust the tracking position to the center by pushing tracking buttons ▲, ▼ (on remote commander).
2) Check that switching position is 6.5 ± 0.5 H. (416 ± 32 μsec)
If not meet the specified value, turn RV202 and repeat steps 1) to 2).

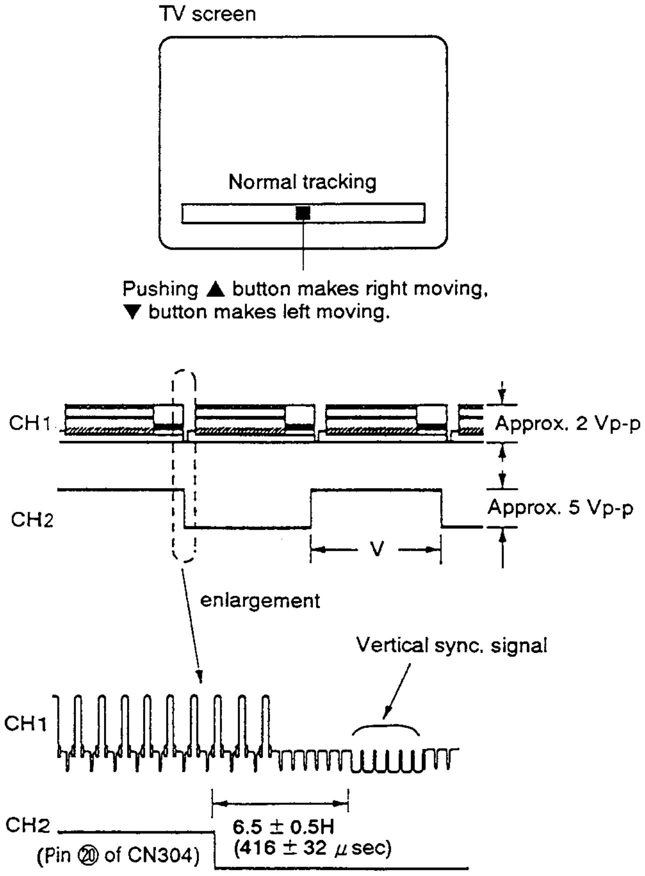

TV screen
Normal tracking
Pushing ▲ button makes right moving,
▼ button makes left moving.
CH1
Approx. 2 Vp-p
CH2
Approx. 5 Vp-p
V
enlargement
Vertical sync. signal
CH1
CH2
(Pin ⑳ of CN304)
6.5 ± 0.5H
(416 ± 32 μsec)

*Fig. 7-2-4.*

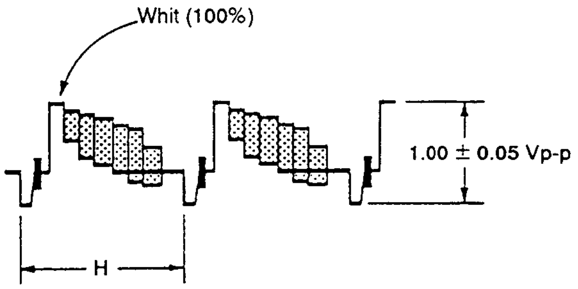
### 2-3-2. Sync AGC Adjustment (RV-33 Board)

| | |
|---|---|
| Mode | E-E |
| Signal | Color bar |
| Measurement Point | CJ701 VIDEO LINE OUT (IO-50 board) |
| Measuring Instrument | Oscilloscope |
| Adjusting Element | RV001 |
| Specified Value | 1.00 ± 0.05 Vp-p |

**Note :** VIDEO LINE OUT terminal must be terminates at 75Ω.

**Adjusting Method:**

1) With RV001, adjust the VIDEO signal level to 1.00 ± 0.05 Vp-p


Whit (100%)
1.00 ± 0.05 Vp-p
H

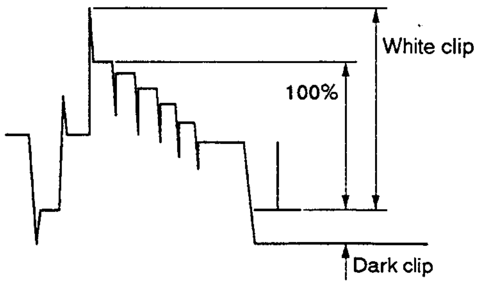
### 2-3-3. White Clip Adjustment (RV-33 Board)

**Purpose:**

Adjust the frequency of FM modulated YFM signal doesn't go too high.

When it is out of order, white goes flat and black is over-modulated.

| | |
|---|---|
| Signal | Color bar |
| Measurement Point | Pin ㊺ of IC001 |
| Measuring Instrument | Oscilloscope |
| Adjusting Element | RV004 |
| Specified Value | White clip and dark clip are equal to the reference waveform. |


White clip
100%
Dark clip

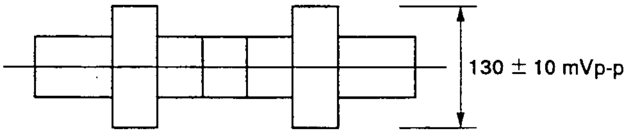
### 2-3-4. Recording Chroma Adjustment (RV-33 Board)

**Purpose:**

Adjust recording chroma level.

When it is out of order, S/N ratio of color goes bad, the picture is not colored and second sequence beat appears.

| | |
|---|---|
| Mode | E-E |
| Signal | Color bar |
| Measurement Point | Q013 Emitter |
| Measuring Instrument | Oscilloscope |
| Adjusting Element | RV009 |
| Specified Value | 130 ± 10 mVp-p |



**Reference:**

Adjusting level is low; Bad color S/N ratio, not colored.

Adjusting level is high; Second sequence beat (squared noise) appears.

### 2-3-5. Playback Level Adjustment (RV-33 Board)

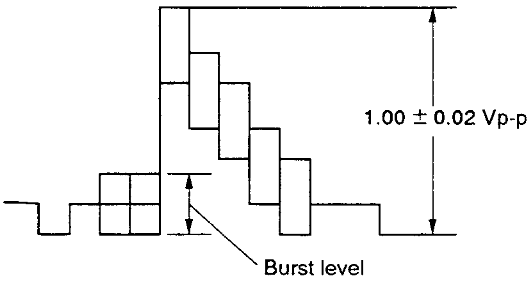
**Purpose:**

Adjust playback video signal level to the specification.

When it is out of order, the picture is darkened or brightened on TV screen. White goes flat.

| | |
|---|---|
| Mode | Playback |
| Signal | Color bar or alignment tape |
| Measurement Point | VIDEO LINE OUT |
| Measuring Instrument | Oscilloscope |
| Adjusting Element | RV003 |
| Specified Value | 1.0 ± 0.02 Vp-p |

**Note :** Video Output terminal must be terminated at 75Ω.



**Reference:**

Adjusting level is low; The picture is darkened on TV screen.

Adjusting level is high; The picture is brightened on TV screen. White goes flat.

### 2-3-6. Carrier Deviation Adjustment (RV-33 Board)

**Purpose:**

Adjust FM modulating frequency for signal.

When it is out of order, black and white are over-modulated, interchangeability is lack, the screen is darkened or brightened or off.

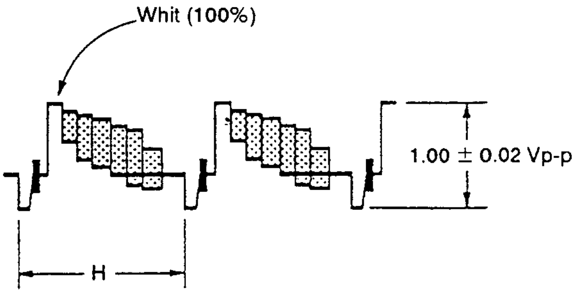
This adjustment should be done after checking 2-3-5. Playback Level Adjustment is satisfied.

| | |
|---|---|
| Carrier Set | |
| Mode | E-E |
| Signal | None |
| Measurement Point | Emitter of Q034 |
| Measuring Instrument | Frequency Counter |
| Adjusting Element | RV006 |
| Specifed Value | 3.80 ± 0.05 MHz |
| Deviation | |
| Mode | REC. PB |
| Signal | Color bar |
| Measurement Point | VIDEO LINE OUT |
| Measuring Instrument | Oscillosope |
| Adjusting Element | RV005 |
| Specifed Value | 1.00 ± 0.02Vp-p |

**Note :** Video Output terminal must be terminated at 75Ω.

**Adjusting Method:**

1) Set to E-E mode in the no signal condition.
2) Connect frequency counter to emitter of Q034, and adjust with RV006 so that the reading on frequwncy counter goes 3.80 ± 0.05 MHz.
3) Feed the color bar signal and record it.
4) Playback the recorded signal and sheck the signal at VIDEO LINE OUT goes 1.00 ± 2.00 Vp-p with oscilloscope.
5) When it is out of order, adjustment it with RV005.
6) Repeat items 4) and 5) fill the specification is satisfied.



### 2-3-7. VCO Adjustment (RV-33 Board)

**Purpose:**

Adjust to lock the color surely.
When it is out of order, the picture doesn't colored.

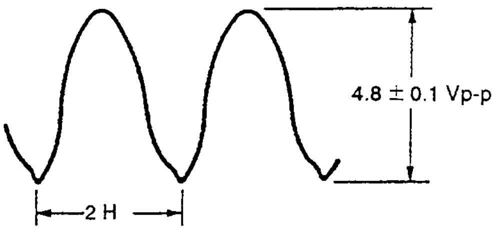
| Mode | PB |
|---|---|
| Signal | Color bar |
| Measurement Point | Pin (55) of IC001 |
| Measuring Instrument | Digital voltmeter |
| Adjusting Element | T001 |
| Specified Value | 2.5 ± 0.1 Vdc |

### 2-3-8. SECAM Discrimination Adjustment (RV-33 Board) (SLV-E80B only)

| Mode | E-E |
|---|---|
| Signal | SECAM Color bar |
| Measurement Point | Pin ⑪ of IC201 |
| Measuring Instrument | oscilloscope |
| Adjusting Element | RV201 |
| Specified Value | 4.8 ± 0.1 Vp-p |

**Adjusting Method:**

1) Adjust RV201 so that the amplitude of 1/2 fh waveform becames 4.8 ± 0.1 Vp-p.



## 2-4. AUDIO SYSTEM ADJUSTMENTS

- Adjust both Lch and Rch.

**[Connection]**

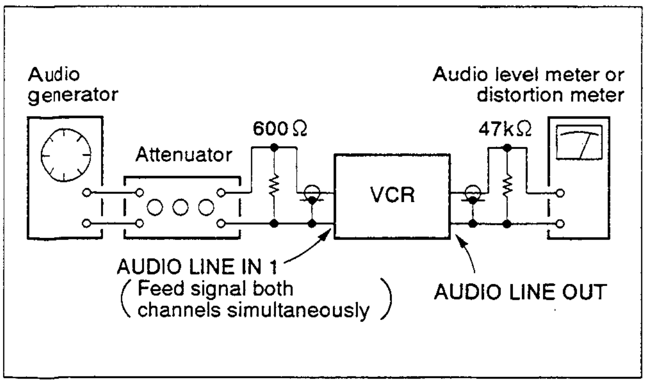

Audio generator
Attenuator
600 Ω
VCR
47kΩ
Audio level meter or distortion meter
AUDIO LINE IN 1
( Feed signal both channels simultaneously )
AUDIO LINE OUT

*Fig. 7-2-5.*

### 2-4-1. Hi-Fi Audio System Adjustment

- Set switches and knobs to the following positions to make adjustment unless otherwise specified.
  INPUT SELECT switch ·········· LINE 1
  AUDIO MONITOR ················ STEREO

**[Adjusting Sequence]**

1. VCO $f_o$ adjustment
2. Deviation check
3. BPF $f_o$ adjustment
4. AF switching position

### 1. VCO $f_o$ Adjustment (HF-34 Board)

**Purpose:**

Adjust to have interchangeability in HiFi audio.
When it is out of order, the sound is distorted.

| Mode | REC |
|---|---|
| Signal | No signal |
| Measuring Instrument | Frequency counter |
| 1.4 MHz Adjustment | |
| Measurement Point | Pin ⑲ of IC101 |
| Adjusting Element | RV103 (R CH) |
| Specified Value | 1.4 MHz ± 1 kHz |
| 1.8 MHz Adjustment | |
| Measurement Point | Pin ㉚ of IC101 |
| Adjusting Element | RV102 (R CH) |
| Specified Value | 1.8 MHz ± 1 kHz |

**Note:** Connect the frequency counter through a probe of high input impedance (more than 1 MΩ ) and low capacity (10 pF or less).

**Adjusting Method:**

1) Connect the frequency counter to each measurement point.
2) Adjust each volume so that each frequency meets its specified value.

### 2. Deviation Check (HF-34 Board)

**Purpose:**

Set the HiFi audio signal level to specified value.
Adjust to have interchangeability with other tapes and sets.
When it is out of order, the volume of sound is different on playback.

| Mode | REC |
|---|---|
| Signal | Pins ①, ③ 400 Hz − 12 dBs |
| Measurement Point | IC101 L CH Pin ⑲<br>R CH Pin ㉚ |
| Measurement Equipment | Frequency counter |
| Specified Value | 50 ± 5 kHz |

### 3. BPF fo Adjustment (HF-34 Board)

**Purpose:**

Adjust to separate carrier component precisely and to operate normally the filter for cutting video signal.
When it is out of order, the sound is distorted.

| | |
|---|---|
| Mode | PB |
| Signal | 1.608 MHz<br>Input 200 mVp-p :<br>Pin ① of CN103 |
| Measurement Point | Pin ⑲ of IC101<br>Pin ㉚ of IC101 |
| Measuring Instrument | Oscilloscope |
| Adjusting Element | RV101 |

**Connection:**

1) Remove HF-34 board from CN103, and feed 1.608 MHz, 200 mVp-p sine wave to Pin ① of CN103.

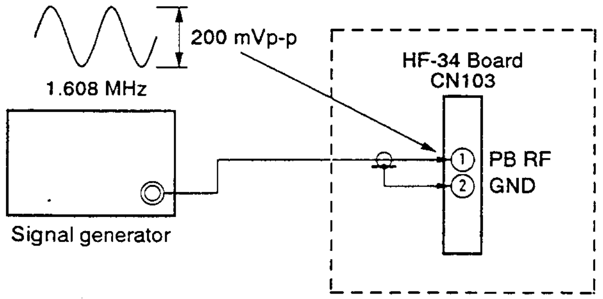

200 mVp-p
1.608 MHz
Signal generator
HF-34 Board
CN103
①
PB RF
②
GND

*Fig. 7-2-6.*

**Adjusting method:**

1) Turn RV101 counterclockwise seen from the component side.
2) Turn RV101 clockwise gradually and stop turning when the level Ⓐ becomes equal to the level Ⓑ.

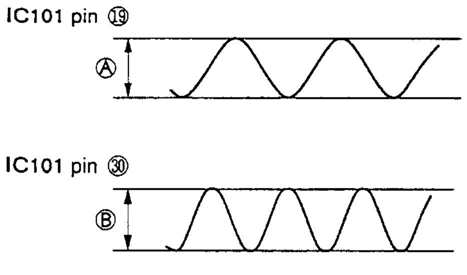

IC101 pin ⑲
Ⓐ
IC101 pin ㉚
Ⓑ

*Fig. 7-2-7.*

### 4. AF Switching Position Adjustment (MA-181 Board)

Adjust the interval between A CH and B CH of tape playback output. Improve the interchangeability with other tapes and sets.
When it is out of order, noisy sound is increased and big noise is heard.

| | |
|---|---|
| Mode | PB |
| Signal | Alignment tape |
| Measurement Point | CH1: See Fig. 7-2-8<br>(HF-34 Board)<br>CH2: Pin ③ of CN802<br>(RV-33 Board) |
| Measuring Instrument | Oscilloscope |
| Adjusting Element | RV201 |
| Specified Value | Fig. 7-2-9 |

Measure between the big land and the small land near the both sides of CN103 on the component side of HF-34 board.

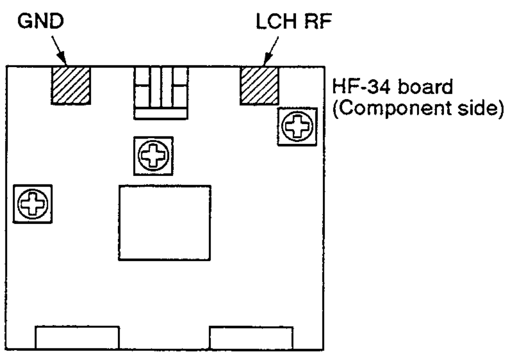

GND
LCH RF
HF-34 board
(Component side)

*Fig. 7-2-8.*

**Adjusting method:**

1) Adjust the tracking position to the center by pushing tracking buttons ▲, ▼ (on remote commander). (Auto tracking: OFF)
2) Adjust RV201 to minimize dropout.

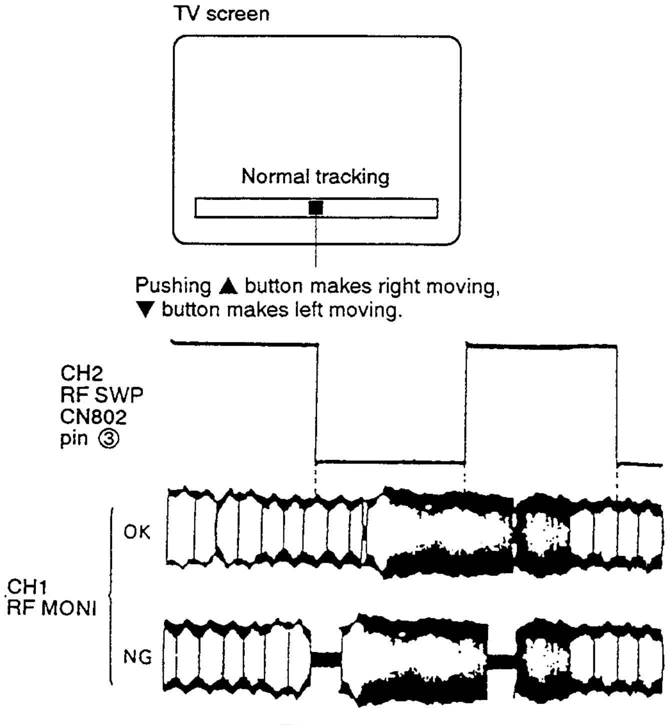

TV screen
Normal tracking
Pushing ▲ button makes right moving,
▼ button makes left moving.
CH2
RF SWP
CN802
pin ③
CH1
RF MONI
OK
NG

*Fig. 7-2-9.*

### 2-4-2. Normal Audio System Adjustment

- Make adjustment in the SP mode, unless otherwise specified. Use a normal VHS cassette for an adjustment tape.
- Set AUDIO MONITOR to normal.

### 1. ACE Head Adjustment

Refer to the service manual of VHS MECHANICAL ADJUSTMENT Ⅱ.

### 2. Recording Bias Adjustment (MA-181 Board)

| | |
|---|---|
| Mode | REC and PB |
| Signal | 400 Hz, − 30 dBs<br>7 kHz, − 60 dBs |
| Measurement Point | AUDIO LINE OUT L or R |
| Measuring Instrument | Audio level meter |
| Adjusting Element | RV851 |
| Specified Value | 0 ± 1 dB |

Adjusting Method :

1) Supply a signal of 400Hz, − 30 dBs to Audio Line Input.
2) Connect the audio level meter to the Audio Line Output.
3) Adjust the attenuator so that the audio level meter will indicate − 30 dBs.
4) Make recording in the SP mode.
5) Set an audio line input signal to 7 kHz and make recording.
6) Playback a recorded portion, and mesure output levels at 400 Hz and 7 kHz.
7) Confirm that the 7 kHz playback output levels within a range of the 400 Hz playback output level 0 ± 1 dB. When beyond this range, sdjust RV851 and repeat the steps 1) through 7) above.

## 2-5. TUNER SYSTEM ADJUSTMENT

### 2-5-1. Receive Separation Adjustment (TU-146 Board)

(SLV-E80NC/NP)

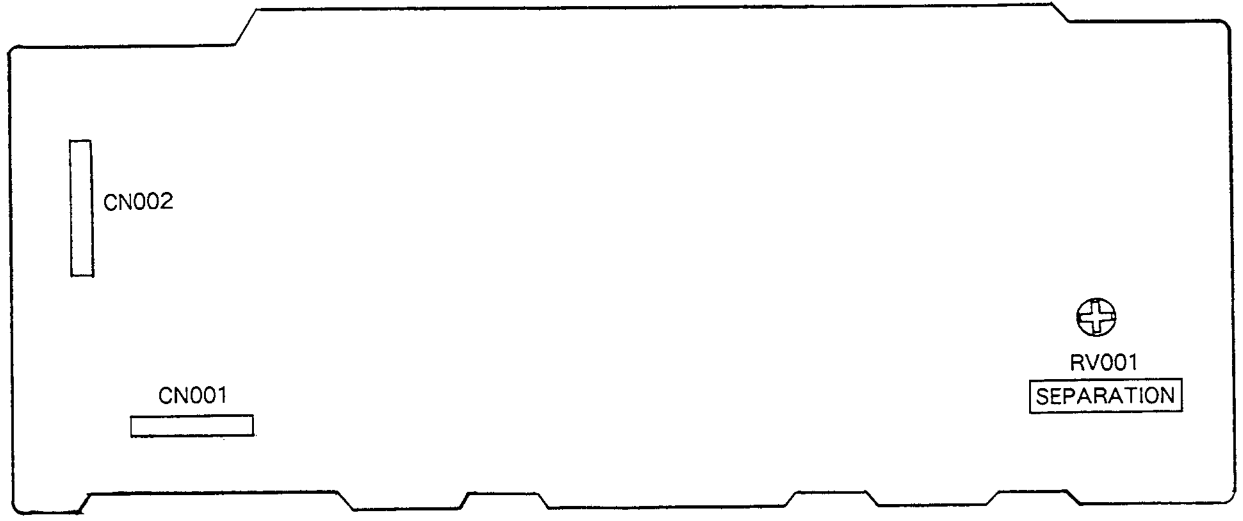
| | |
|---|---|
| Signal | Stereo Lch: No modulation<br>Rch: 1 kHz<br>Modulation: 100% |
| Connection Point | AUDIO LINE OUT L |
| Measuring Instrument | Oscilloscope |
| Adjusting Element | RV001 |

**Adjusting method:**

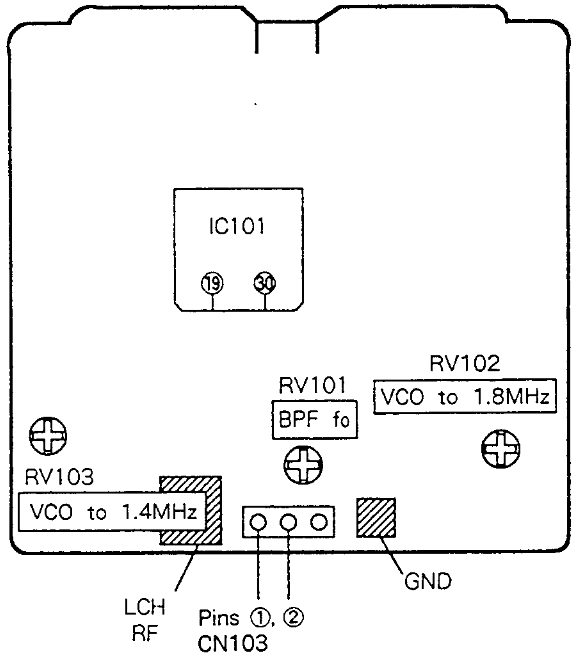
1) Set the sound multiplex signal generator in the Stereo mode, and set Lch to 400 Hz and Rch to 1 kHz, 100% modulation.
2) Connect the oscilloscope to the Lch of Audio Line Output.
3) Adjust RV001 to minimize Rch (1 kHz) output. When this is done, do not fully turn RV001. (The "STEREO" indication must be illuminated.)

## 2-6. PARTS ARRANGEMENT DIAGRAM FOR ADJUSTMENTS

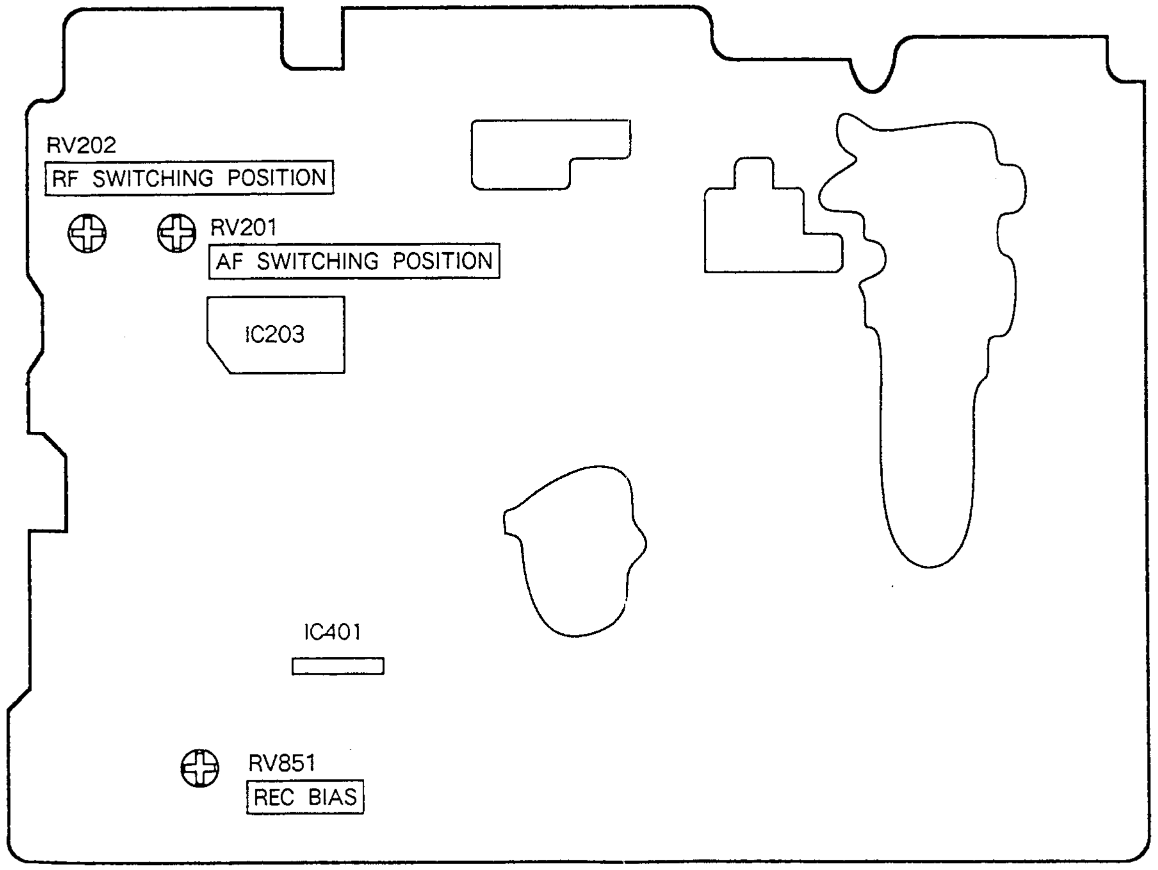
**TU-146 BOARD (CONDUCTOR SIDE)**



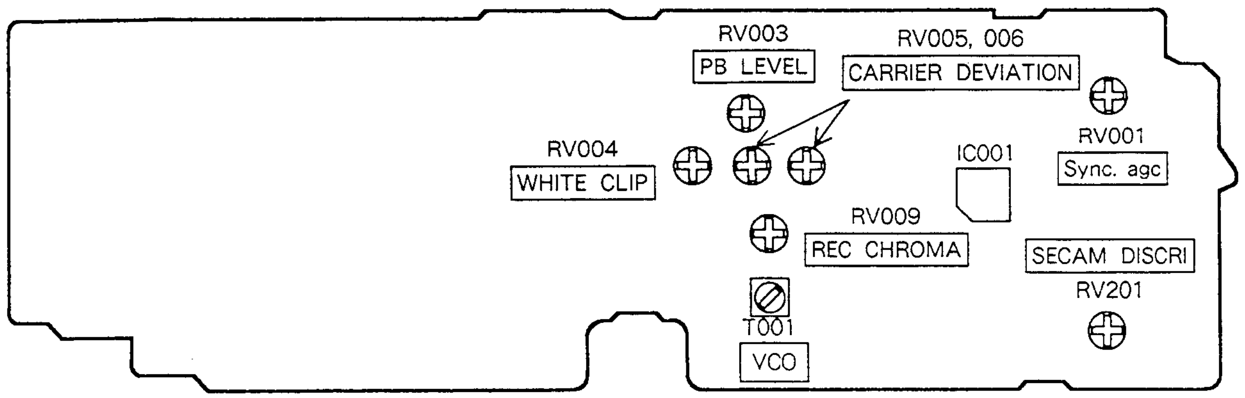
## HF-34 BOARD (COMPONENT SIDE)


IC101
⑲
㉚
RV101
BPF fo
RV102
VCO to 1.8MHz
RV103
VCO to 1.4MHz
LCH
RF
Pins ①, ②
CN103
GND

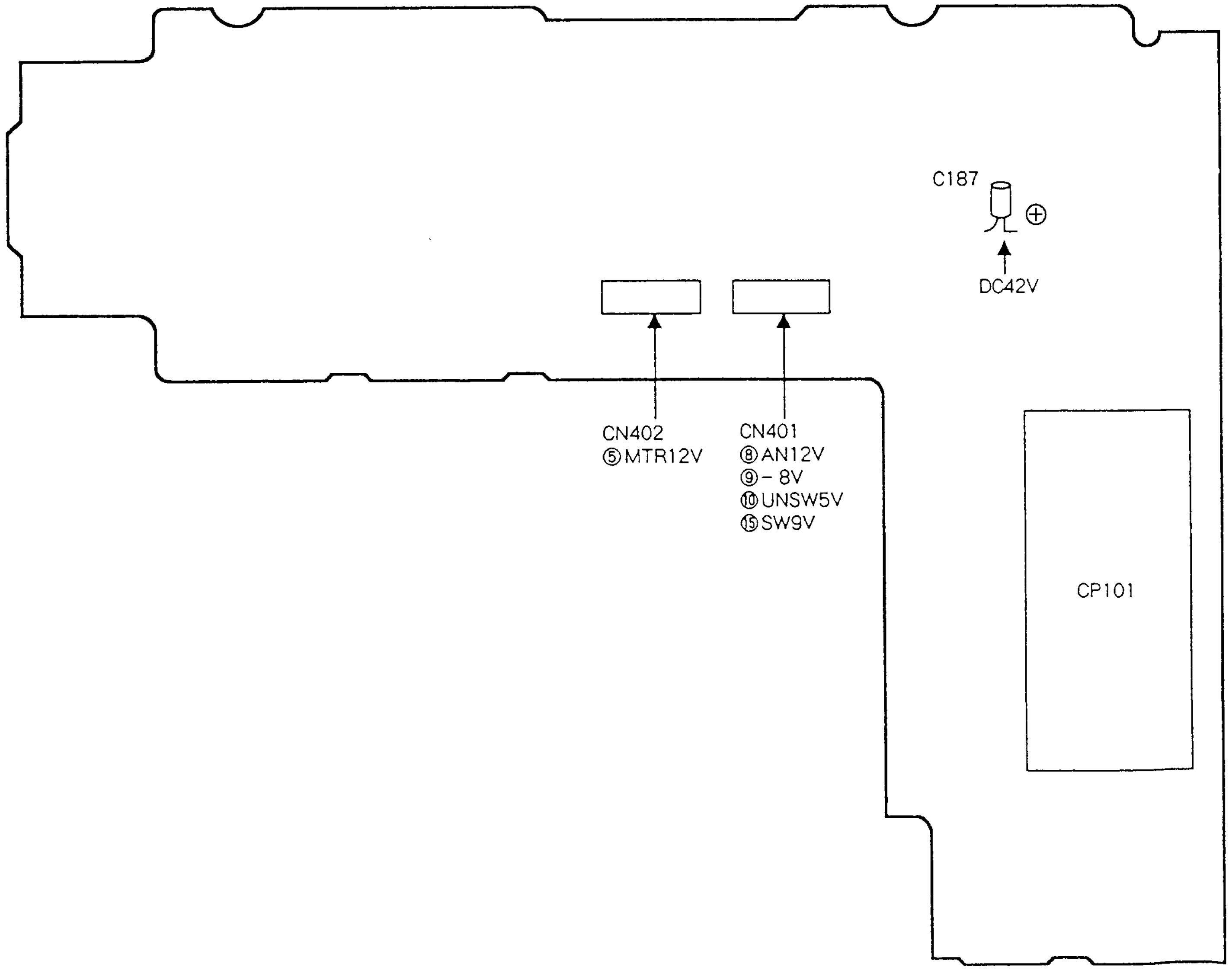
## MA-181 BOARD (CONDUCTOR SIDE)


RV202
RF SWITCHING POSITION
RV201
AF SWITCHING POSITION
IC203
IC401
RV851
REC BIAS

## RV-33 BOARD (COMPONENT SIDE)

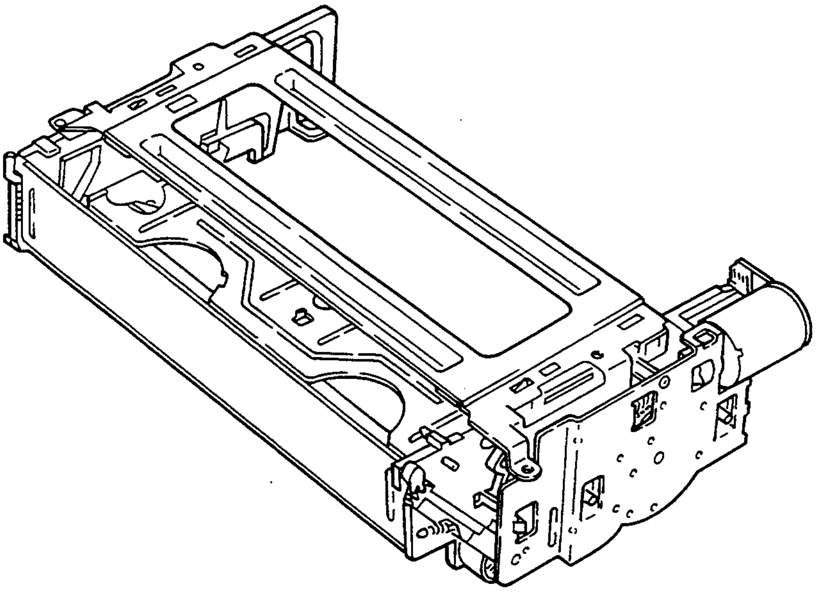

RV003
PB LEVEL
RV005, 006
CARRIER DEVIATION
RV001
Sync. agc
RV004
WHITE CLIP
IC001
RV009
REC CHROMA
SECAM DISCRI
RV201
T001
VCO

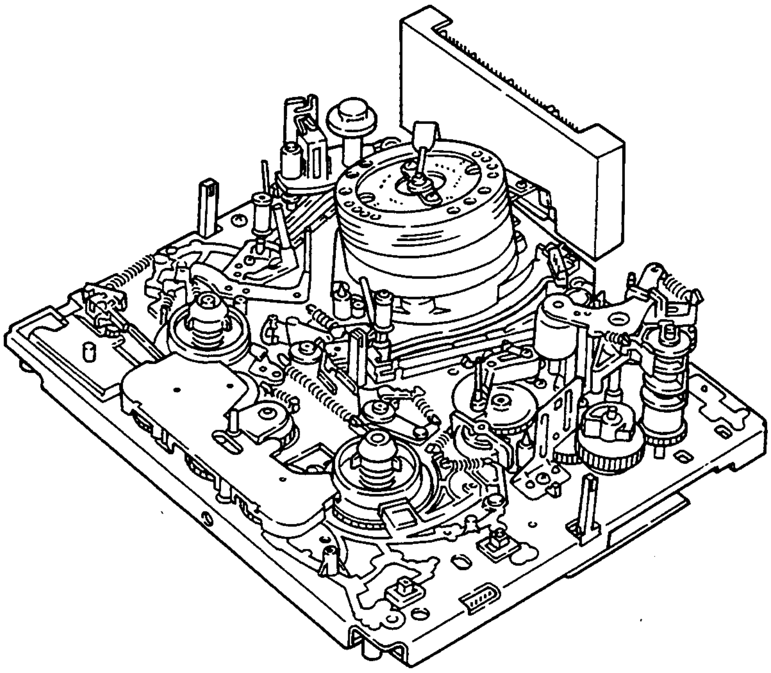
## PT-96 BOARD (CONDUCTOR SIDE)


C187
⊕
DC42V
CN402
⑤MTR12V
CN401
⑧AN12V
⑨- 8V
⑩UNSW5V
⑮SW9V
CP101

# VHS MECHANICAL ADJUSTMENT MANUAL Ⅱ

- Please use in conjunction with the SERVICE MANUAL.
- This VHS MECHANICAL ADJUSTMENT MANUAL Ⅱ can be used for NTSC system and PAL system.





MICROFILM

## VHS VIDEO RECORDER

**SONY**®

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# 1. PREPARATIONS FOR CHECKS, ADJUSTMENTS AND REPLACEMENT OF THE DECK MECHANISM

**Note :** Refer to "Replacement Method" in the Service Guide for instructions on replacing the cabinet and PC boards. DO not perform cassette loading or threading with the VCR positioned upside-down.

## 1-1. LOADING AND UNLOADING VIDEO CASSETTES WITH THE POWER OFF. (Fig. 1-1.)

### 1-1-1. Manual loading and unloading

1) Rotate the loading motor in the direction of arrow Ⓐ until loading is compleated.
(When unloading, rotate the loading motor in the direction of arrowⒷ.)

### 1-1-2. Loading and unloading using a separate power source.

1) Cassette loading is performed by applying approx. 10V (300 mA) to the power terminal of the loading motor using a stabilized DC power source.
(When unloading, apply the same voltage to the opposite polarity of the power terminal.)

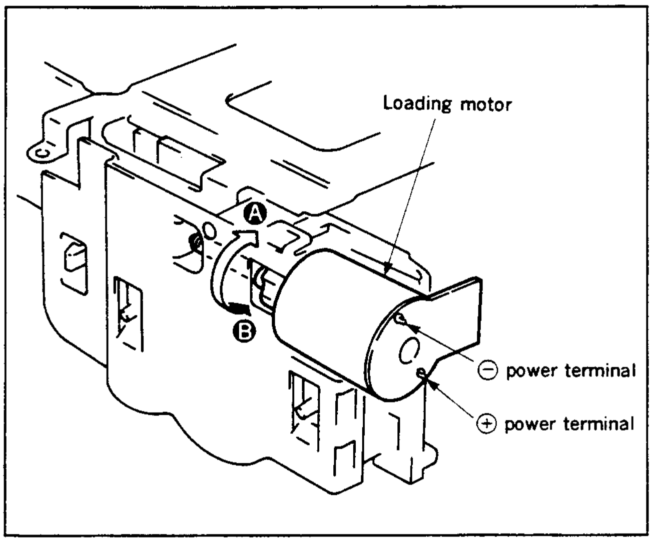


Fig. 1-1.

## 1-2. THREADING AND UNTHREADING WITH THE POWER OFF. (Fig. 1-2)

### 1-2-1. Manual threading and unthreading

1) Rotate the cam motor ❶ in the direction of arrowⒶuntil threading is completed.
(When unthreading, rotate the cam motor ❶ in the direction of arrowⒷ.)

### 1-2-2. Threading and unthreading using a separate power source.

1) Threading is performed by applying approx. 10V (500 mA) to the power terminal for the cam motor ❶ using a DC stabilized power source.
(When unthreading, apply the same voltage to the opposite polarity of the power terminal.)

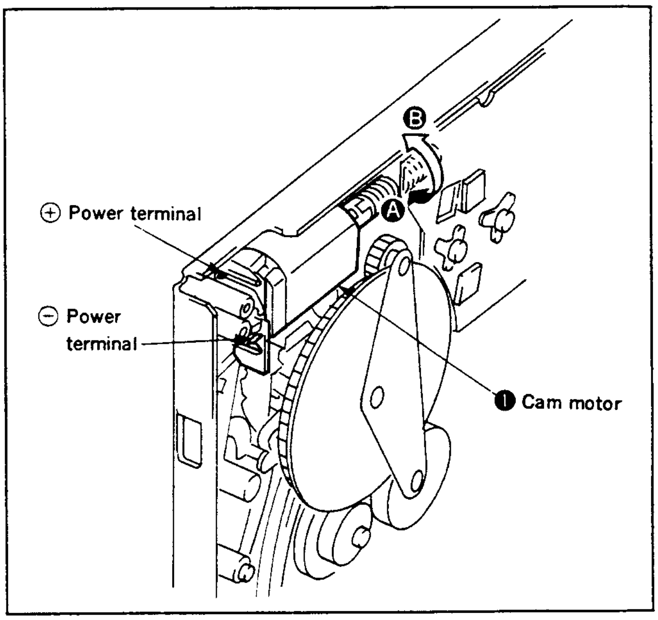


Fig. 1-2.

## 1-3. TO COMPLETE THREADING WITH THE FL CASSETTE CONTROLLER REMOVED. (Fig. 1-3)

1) Unplug the AC power cord from the power outlet.
2) Shield the supply, take-up sensors and the LED with black-masking tape.
3) Hold the cassatte down switch depressed by taping it, etc.
4) Plug the AC power cord into a power outlet.
   (At this time, the power should turn on and the tape rewinds for approx. 10 seconds, and the power turns off.)
5) Turn the power switch ON so that the mechanism is ready for loading.

**Note :** In this condition, the VTR is ready to operate in the different operating modes, including the record mode. At this time, rewind the tape for at least 15 seconds, then perform fast forward (FF).

**Note :** Following the above, be sure to reset the mechanism to the previous state as outlined below.

1) Remove the black-masking tape shielding the supply and take-up sensors, the LED and the tape holding cassette down switch.
2) Unplug the AC power cord from the power outlet to reset the system control microprocessor.

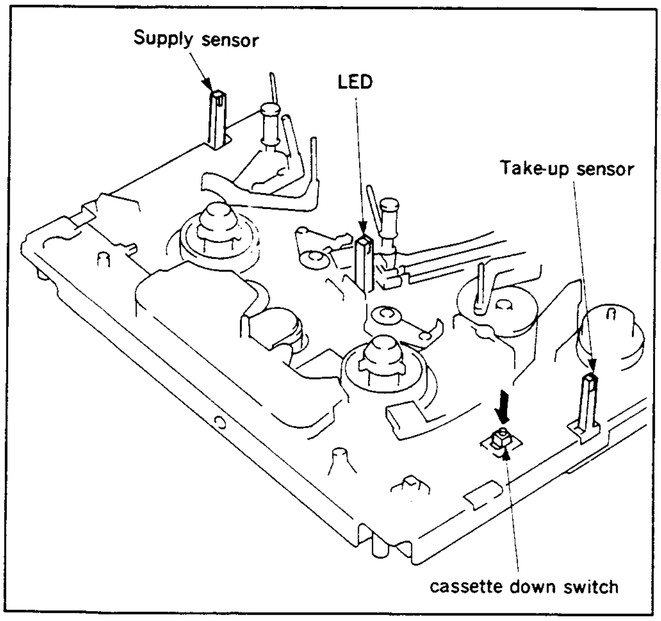


Fig. 1-3.

# 2. PERIODICAL INSPECTION AND REPLACEMENT

We recommend performing the following periodical inspections and maintenance in order to ensure that the unit operates in top condition and offers full performance, as well as realizes a long life of the mechanism and tapes.

* Be sure to perform the following maintenance procedures after the unit is repaired (regardless how long the unit has been used.)

## 2-1. CLEANING THE ROTARY HEAD DISC ASS'Y

1) Press Attach a deer skin cloth (Jig. Ref. No. J-7) soaked in cleaning solution (Jig. Ref. No. J-5) lightly to the rotary drum ass'y, then turn the rotary head disc slowly by hand to clean the surface of the rotary drum ass'y. (At this time, do not turn on the power motor to rotate the rotary head disc for cleaning.)
2) Also, do not wipe the drum ass'y by moving the deer skin cloth vertically across the head as this could damage of the tip of the head.

## 2-2. CLEANING THE TAPE TRANSPORT SYSTEM

1) Clean the tape transport surfaces (tape guide, a drum ass'y surfaces, capstan, pinch roller, etc.) with a deer skin cloth soaked in an approved in the recommended cleaning solution.

## 2-3. CLEANING THE DRIVE SYSTEM

1) Wipe the drive mechanism with an ordinary cloth soaked in an approved cleaning solution.

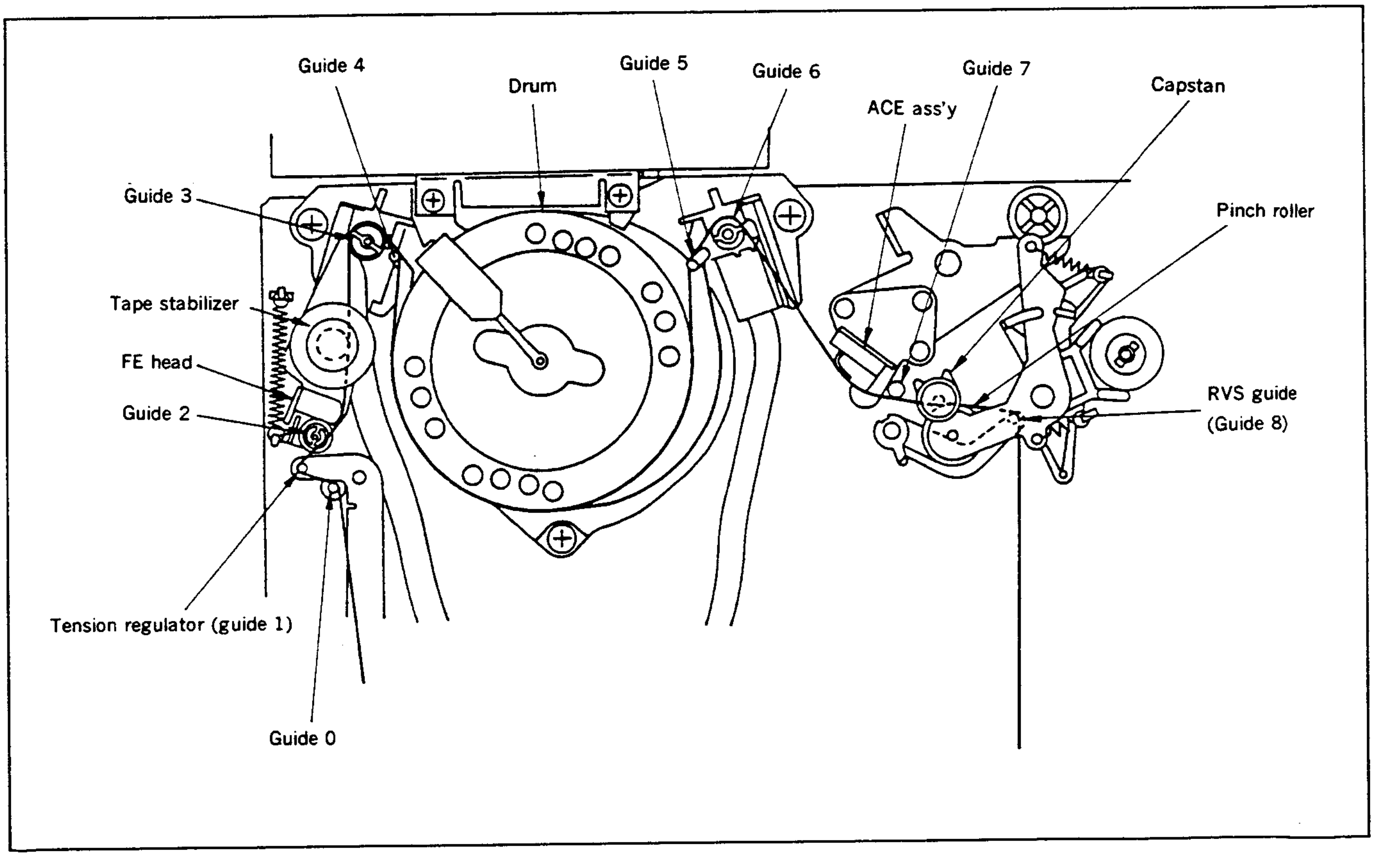

Guide 4
Drum
Guide 5
Guide 6
Guide 7
ACE ass'y
Capstan
Guide 3
Pinch roller
Tape stabilizer
FE head
Guide 2
RVS guide
(Guide 8)
Tension regulator (guide 1)
Guide 0

Fig. 2-1.

## 2-4. PERIODIC MAINTENANCE

| Location of Maintenance and Check | | User Hours | 500 | 1,000 | 1,500 | 2,000 | 2,500 | 3,000 | 3,500 | 4,000 | 4,500 | 5,000 | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Replacement Part No. | | | | | | | | | | | |
| Performance Check | Clean tape running surfaces | —— | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | Always perform after repair. |
| | Clean, degauss ACE ass'y | —— | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | |
| | Clean, degauss video disc ass'y | —— | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | Head life is greatly affected by environment and method of use. |
| Driving System | Reel belt | 3-736-013-01 | ☆ | ☆ | ☆ | ☆ | ☆ | ☆ | ☆ | ☆ | ☆ | ☆ | Always perform after repair. |
| Tape Running System | Abnormal noise | —— | ☆ | ☆ | ☆ | ☆ | ☆ | ☆ | ☆ | ☆ | ☆ | ☆ | Adjust or replace source of abnormal noise. |
| | Back tension measurement | —— | – | ☆ | – | ☆ | – | ☆ | – | ☆ | – | ☆ | Check according to 4-1-1.<br>Spec : 24 — 34g/cm<br>(Measured with torque cassette) |
| | Brake system check | —— | – | ☆ | – | ☆ | – | ☆ | – | ☆ | – | ☆ | |
| | REC/PB function check | —— | ☆ | ☆ | ☆ | ☆ | ☆ | ☆ | ☆ | ☆ | ☆ | ☆ | Always perform after repair. |
| | Forward torque measurement | | ☆ | ☆ | ☆ | ☆ | ☆ | ☆ | ☆ | ☆ | ☆ | ☆ | Spec : 80 — 140 g·cm |

○ Cleaning ☆ Check

**Note :** Refer to the above items for part replacement when performing an overhaul.

## 2-5. SERVICE TOOLS AND JIGS

| Ref. No. | Description | Part No. | Printing on jig | Remarks |
|---|---|---|---|---|
| J-1 | Master plane | H-7099-279-H | | |
| J-2 | Reel disc height jig | H-7099-038-H | | |
| J-3 | Torque gauge adapter | H-7099-035-H | | |
| J-4 | Torque gauge | H-7099-039-H | | |
| J-5 | 0.93mm Allen wrench | H-7099-202-H | | |
| J-6 | NTSC torque cassette VHT-063S<br>PAL torque cassette | J-6082-011-A<br>J-6082-066-A | | For rewind torque and back tension |
| | NTSC torque cassette VHT-404S<br>PAL torque cassette | J-6082-012-A<br>J-6082-067-A | | For cue/review |
| J-7 | NTSC alignment tape JVC-MH-1<br>PAL alignment tape JVC-MH-2 | H-7099-046-H<br>H-7099-052-H | | |
| | NTSC Hi-Fi alignment tape<br>PAL Hi-Fi alignment tape | H-7099-153-H<br>H-7099-175-H | | |
| J-8 | Cleaning fluid | Y-2031-001-0 | — | |
| J-9 | Chamois cloth | 2-034-697-00 | — | Cleaning |
| J-10 | Head degausser | Widely available | — | Video, audio head degaussing |
| J-11 | Small adjustment mirror (with handle)<br>Small adjustment mirror (mirror only) | J-6080-029-A<br>J-6080-030-1 | SL-5052 | For tape path and tape running adjustment and check |

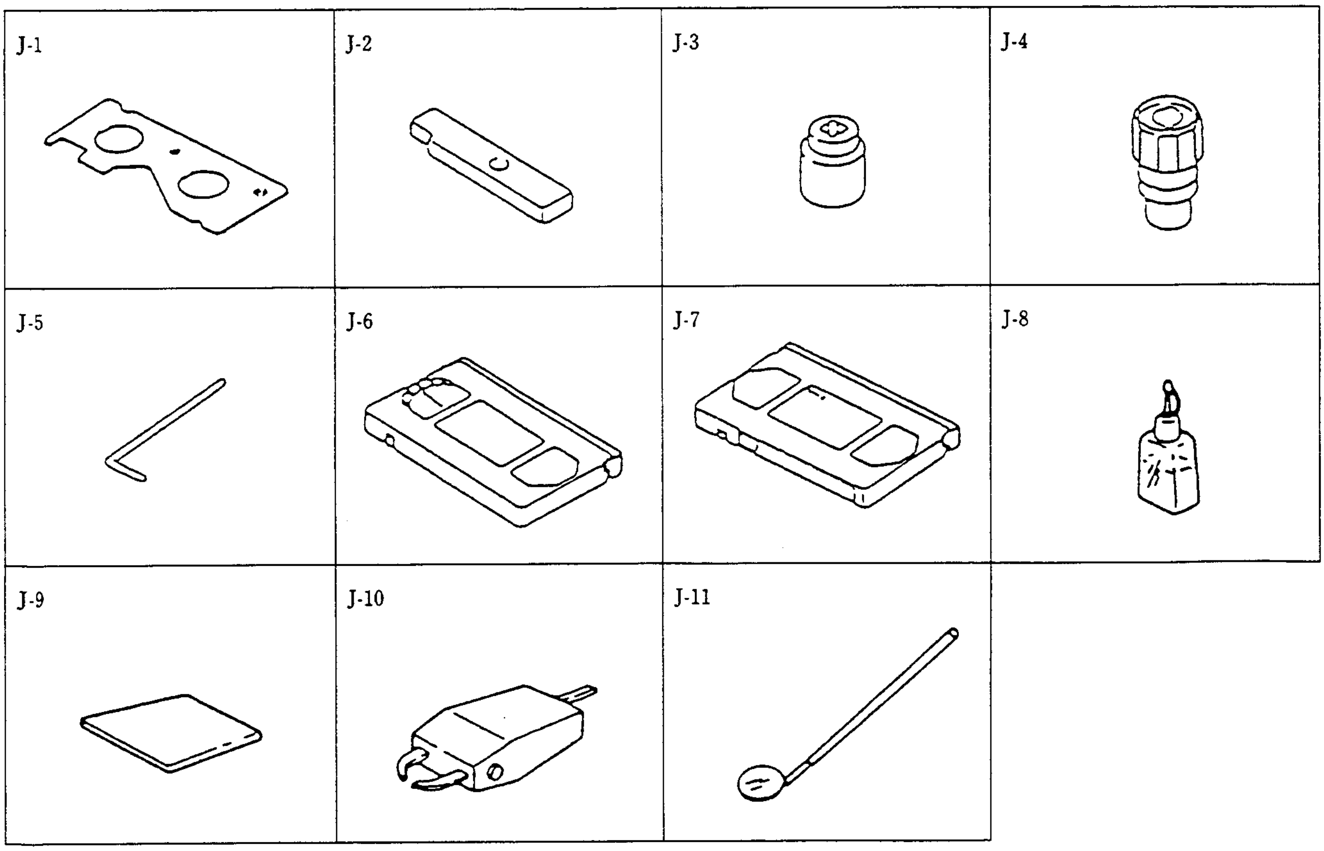


Fig. 2-2. Service tools and jigs

# 3. REPLACEMENT OF MAJOR COMPONENT PARTS OF THE DECK MECHANISM

**Note :**
- ○ Refer to "Replacement Method" in the Service Guide for replacing the cabinet and PC boards.
- ○ When mounting parts, reverse the replacement procedure while referring to "Precautions on Mounting Parts".

## 3-1. FL MECHANISM

### 3-1-1. FL door (Fig. 3-1.)

1) Press the claw ❶ in the direction of arrow Ⓐ, then remove the FL door ❷ in the direction of arrow Ⓑ.

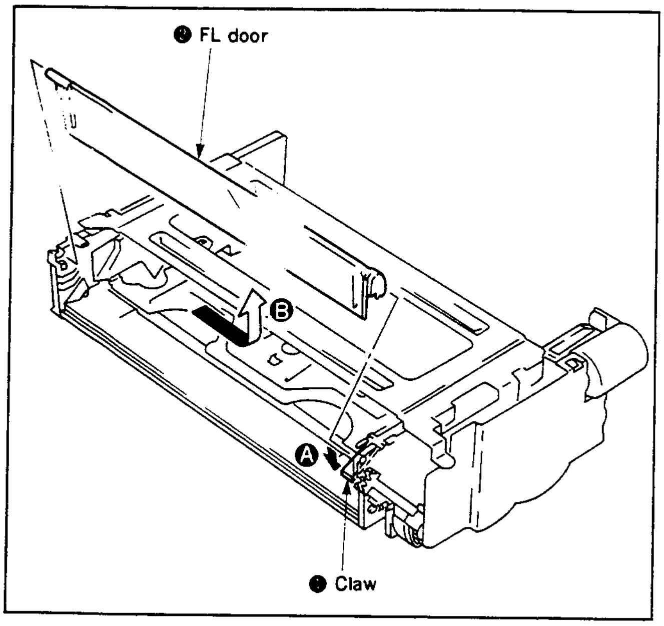

❷ FL door
Ⓑ
Ⓐ
❶ Claw

Fig. 3-1.

### 3-1-2. Erasure protection lever (Fig. 3-2)

1) Remove the spring ❶.
2) Disengage the claw ❷, then slide the erasure protection lever ❸ in the direction of arrow Ⓐ.
3) Disengage the erasure protection lever ❸ in the direction of arrow Ⓑ.

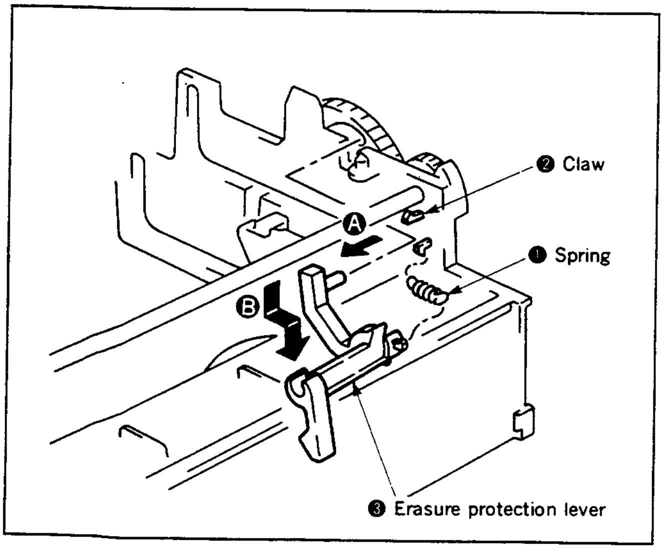

❷ Claw
Ⓐ
❶ Spring
Ⓑ
❸ Erasure protection lever

Fig. 3-2.

- ○ After grease coated parts such as gears are replaced, re-grease the replaced part.
- ○ Do not touch the guides (taped surface) and brake shoe directly with your fingers or grease them, etc.
- ○ Gears must be mounted so that they mesh with each other.

### 3-1-3. Gear cover ass'y (Fig. 3-3)

1) Disengage the four claws ❶, then remove the gear cover ass'y ❷.

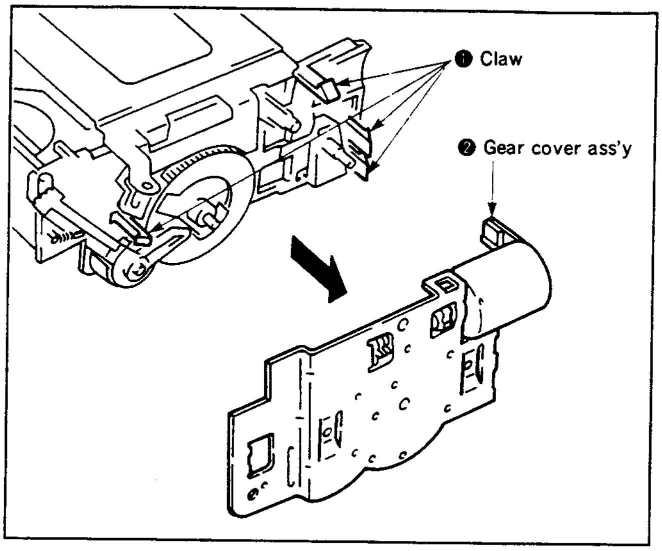

❶ Claw
❷ Gear cover ass'y

Fig. 3-3.

### 3-1-4. Loading motor, worm gear (FL), worm wheel (FL), worm bearing (Fig. 3-4)

1) Remove washer 3 ❶, then pull out the worm wheel (FL) ❷.
2) Remove the two screws ❸, then remove the loading motor ❹.
3) Remove the worm gear (FL) ❺ and worm bearing ❻.

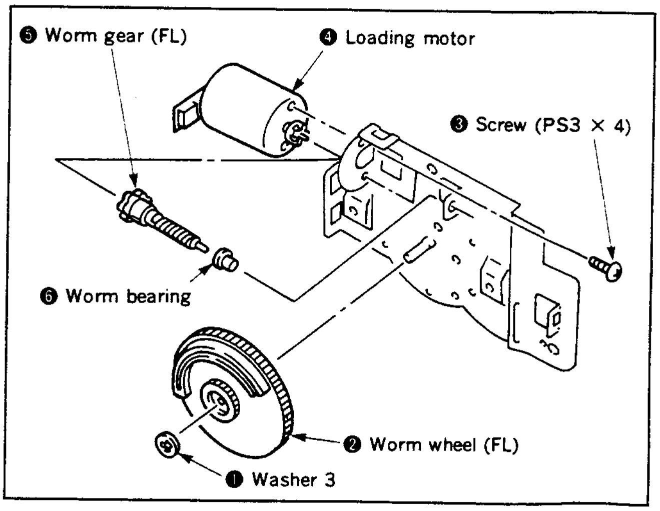

❺ Worm gear (FL)
❹ Loading motor
❸ Screw (PS3 × 4)
❻ Worm bearing
❷ Worm wheel (FL)
❶ Washer 3

Fig. 3-4.

### 3-1-5. Door OPEN/CLOSE arm (Fig. 3-5)

1) Remove the spring ❶.
2) Pull out the door OPEN/CLOSE arm ❷.

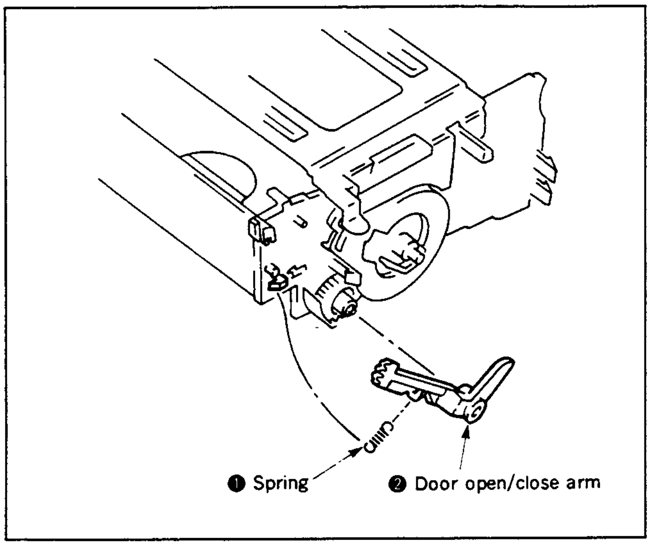

❶ Spring
❷ Door open/close arm

Fig. 3-5.

**[Precautions on remounting] (Figs. 3-6 and 3-7.)**

○ When mounting the gear cover ass'y, match up the two holes on the gear cover ass'y with the two holes on the worm wheel (FL) and then with the hole on the right drive arm ass'y.

○ Mesh the FL door and the door OPEN/CLOSE arm together as shown in Ⓐ section in the figure below.

○ The erasure protection lever shaft must fit into the groove on the left drive arm ass'y.

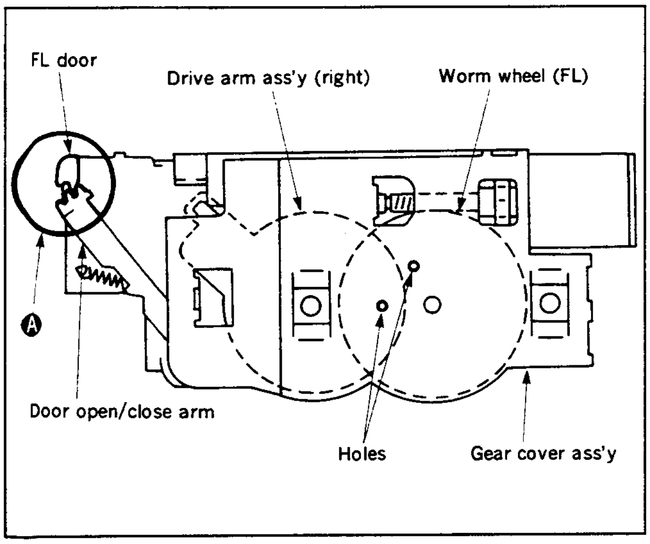

FL door
Drive arm ass'y (right)
Worm wheel (FL)
Ⓐ
Door open/close arm
Holes
Gear cover ass'y

Fig. 3-6.

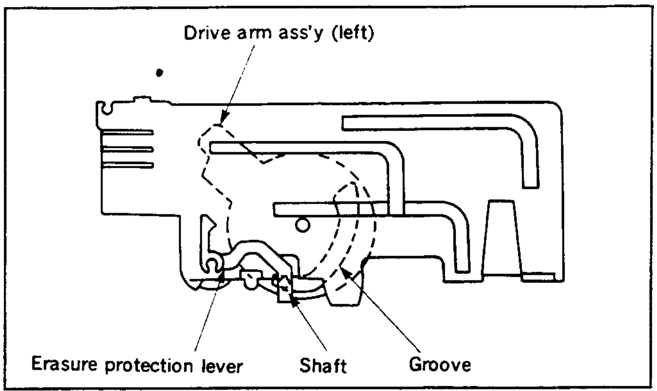

Drive arm ass'y (left)
Erasure protection lever
Shaft
Groove

Fig. 3-7.

### 3-2. TS ASS'Y AND GUIDE ROLLER ASS'Y No. 2 (Fig. 3-8)

1) Remove the spring ❶.
2) Remove the TS ass'y ❷ in the direction of arrow Ⓐ.
3) Turn guide roller ass'y No. 2 ❸ in the direction of arrow Ⓑ and pull it out.

**[Precautions on remounting]**

○ Clean the surface of guide roller No. 2 ❸ where the tape is attached.

○ Apply lubricant over the section shown in Figure A below.

**[Adjustment after replacement]**

○ Perform tape path adjustments as described in 4-1.

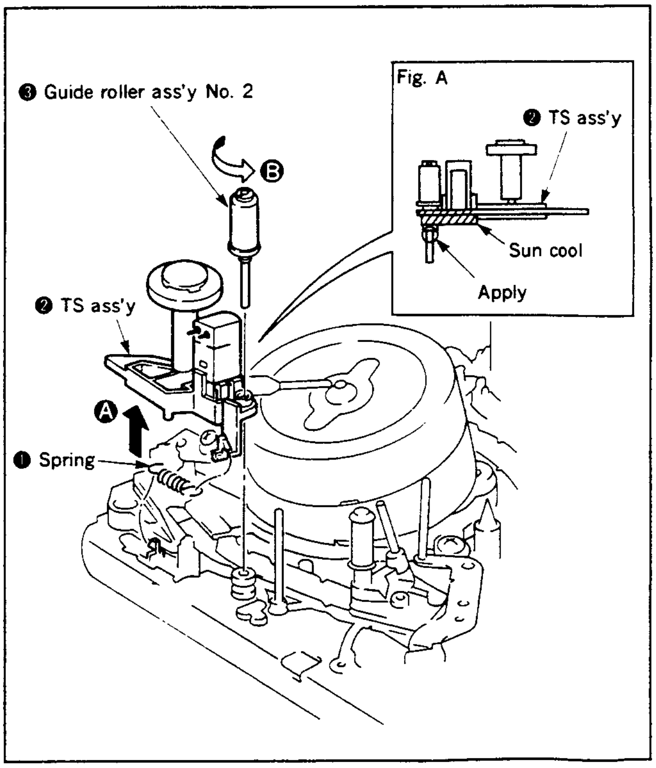

❸ Guide roller ass'y No. 2
Ⓑ
❷ TS ass'y
Ⓐ
❶ Spring
Fig. A
❷ TS ass'y
Sun cool
Apply

Fig. 3-8.

### 3-3. ACE ASS'Y (Fig. 3-9)

1) Slide the torsion coil spring ❶ in the direction of the arrow.
2) Remove the nylon nut N3 ❷, then pull out the ACE ass'y ❸.
3) Remove the ACE adjuster screw ❹.

**[Precautions on remounting]**

- ○ Clean the surface of the ACE ass'y ❸ where the tape is attached.
- ○ Hook both ends of the torsion coil spring ❶ to the ass'y as shown in Figure A below.
- ○ Adjust the ACE adjuster screw ❹ to the height shown in Figure A.

**[Adjustment after replacement]**

- ○ Perform tape path adjustments as described in 4-1.

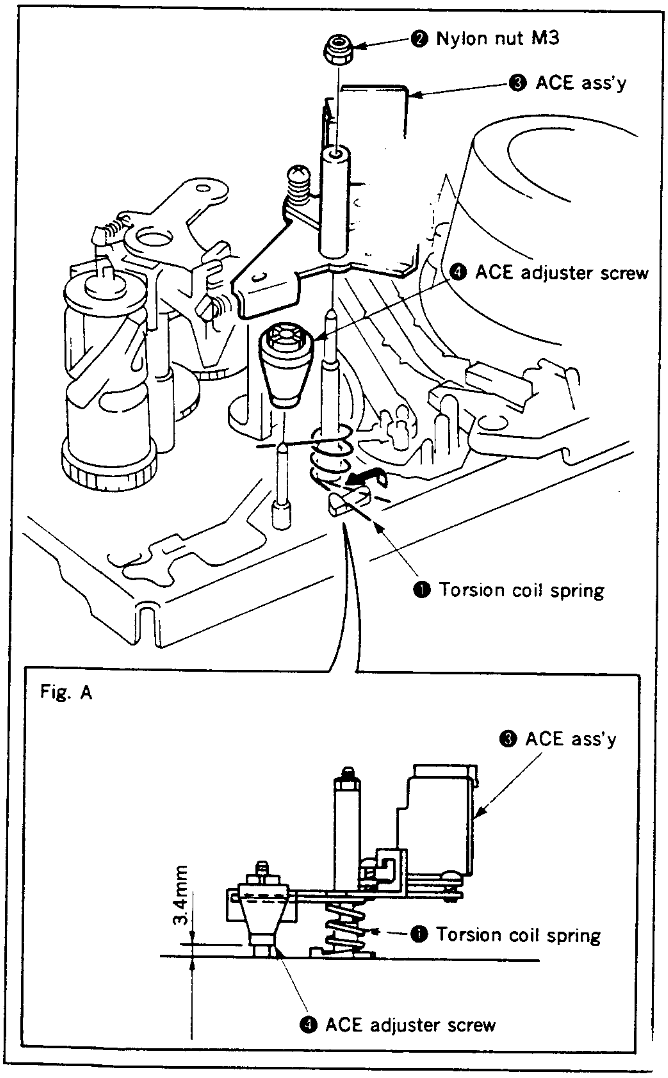

❷ Nylon nut M3
❸ ACE ass'y
❹ ACE adjuster screw
❶ Torsion coil spring
Fig. A
❸ ACE ass'y
3.4mm
❶ Torsion coil spring
❹ ACE adjuster screw

Fig. 3-9.

### 3-4. DRUM ASS'Y (Fig. 3-10)

1) Remove the three screws ❶, then remove the drum ass'y ❷.

**[Precautions on remounting]**

- ○ Do not touch the head tips ❸ and the ground plate ❹ directly with your fingers or tools.
- ○ Clean the surface of the drum ass'y ❷ where a tape is attached.
- ○ The stopper ❺ must be attached at the point shown in the figure below
- ○ Screws must be fastened with a 6kg•cm (±1kg•cm) screw fastening torque. (The screws can be mounted in any order.)

**[Adjustment after replacement]**

- ○ Perform tape path adjustments as described in 4-1.

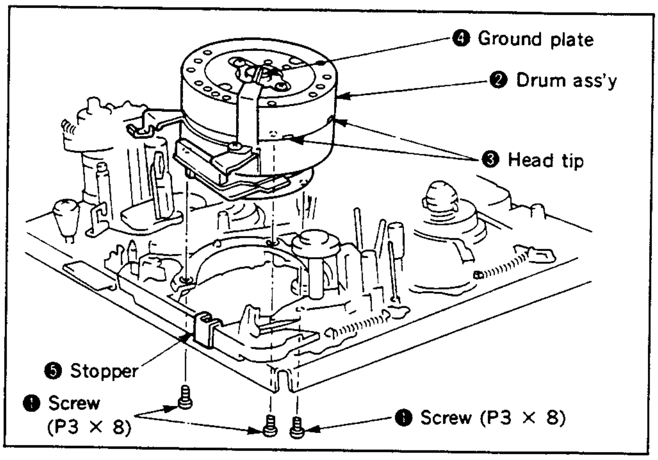

❹ Ground plate
❷ Drum ass'y
❸ Head tip
❺ Stopper
❶ Screw (P3 × 8)
❶ Screw (P3 × 8)

Fig. 3-10.

### 3-5. DRUM BASE ASS'Y (Fig. 3-11)

1) Remove the drum. (Refer to 3-4.)
2) Remove the three screws ❶, then remove the drum base ass'y ❷.

**[Precautions on remounting]**

- ○ The spacer ❸ for the drum base must be mounted in its previous position as shown in the figure below. [Note that some units do not feature the spacer ❸.]
- ○ Fastening torque must be 10kg•cm (±1kg•cm)
- ○ The screws must be mounted in order of (a),(b) and (c).

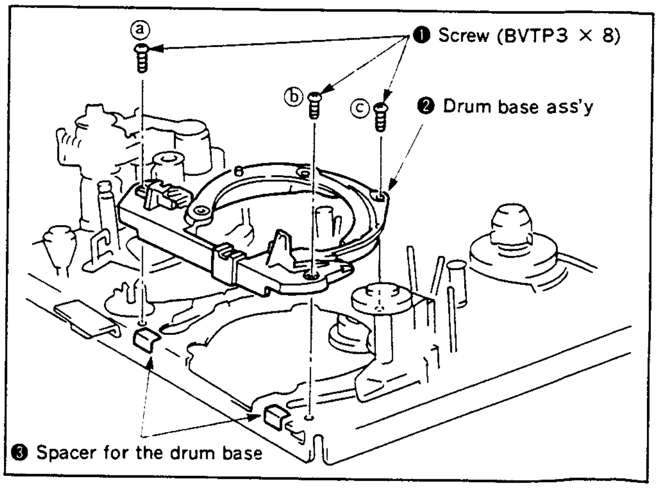

ⓐ
ⓑ
ⓒ
❶ Screw (BVTP3 × 8)
❷ Drum base ass'y
❸ Spacer for the drum base

Fig. 3-11.

## 3-6. PINCH ROLLER ASS'Y AND ELEVATOR CAM (Fig. 3-12)

1) Remove the two claws ❶, then pull out the stopper ❷.
2) Pull out the pinch roller ass'y ❸.
3) Pull out the elevator cam ❹.

**[Precautions on remounting]**

- ○ Clean the surface of the pinch roller ass'y ❸ where the tape is attached.
- ○ Match up the ▯ marks on the elevator cam ❹ and cam gear, press ❺.

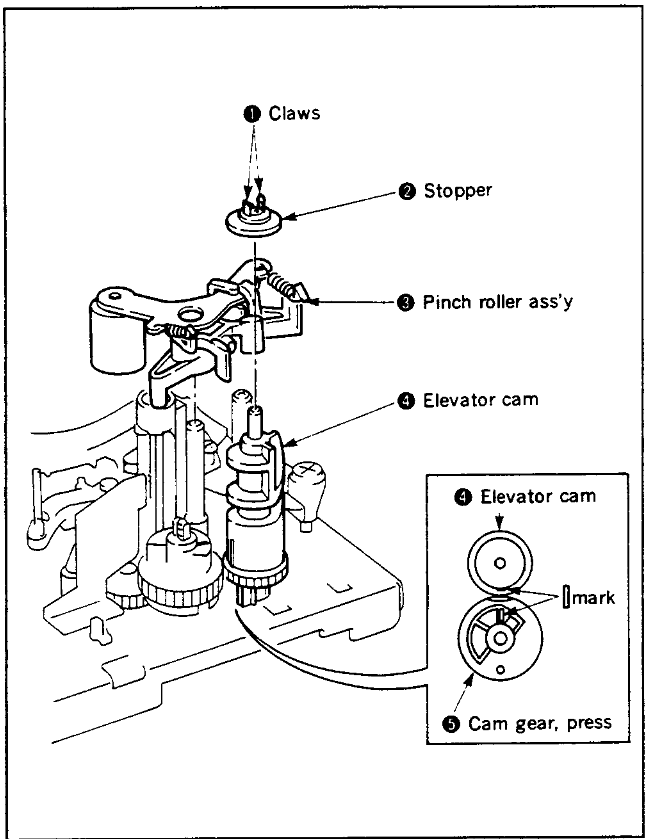

❶ Claws
❷ Stopper
❸ Pinch roller ass'y
❹ Elevator cam
❹ Elevator cam
▯mark
❺ Cam gear, press

Fig. 3-12.

## 3-7. CAM GEAR, PRESS AND TRANSMISSION GEAR (Fig. 3-13)

1) Remove the pinch roller ass'y. (Refer to 3-6.)
2) Remove the screw ❶, then remove the lid release plate ❷.
3) Remove the two claws ❸, then pull out the cam gear, press ❹.
4) Remove the washer 2 ❺, then pull out the transmission gear ❻.

**[Precautions on remounting]**

- ○ Check the top and bottom of the transmission gear ❻.
- ○ Match up the hole ❼ on the chassis with the hole ❼ on the cam gear, press ❹.
- ○ Match up the ▯ mark on the cam gear, press ❹ with the ▯ mark on the alleviator cam ❽.

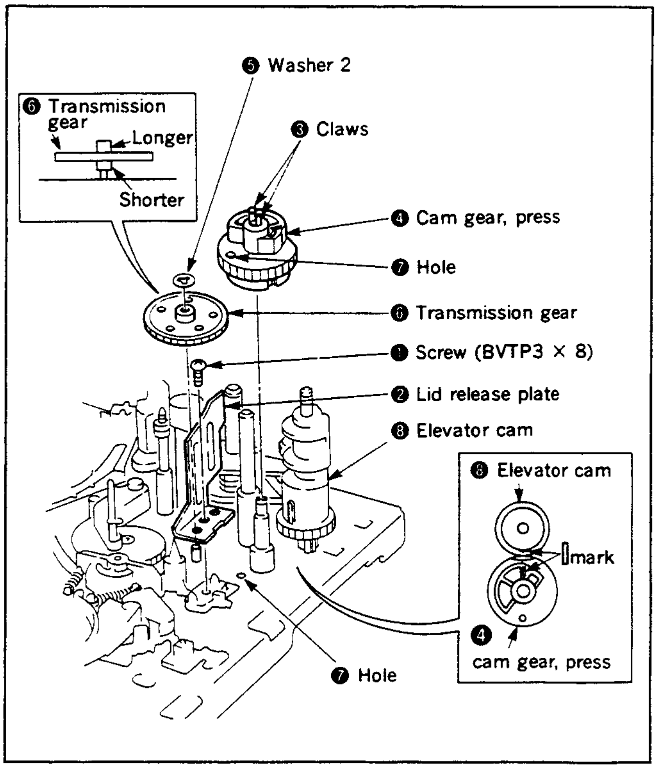

❺ Washer 2
❻ Transmission gear
Longer
Shorter
❸ Claws
❹ Cam gear, press
❼ Hole
❻ Transmission gear
❶ Screw (BVTP3 × 8)
❷ Lid release plate
❽ Elevator cam
❽ Elevator cam
▯mark
❹ cam gear, press
❼ Hole

Fig. 3-13.

## 3-8. RVS ARM ASS'Y AND RVS CAM GEAR (Fig. 3-14)

1) Remove the nylon nut M2 ❶ and plastic washer ❷.
2) Disengage the claw ❸, then pull out the RVS arm ass'y ❹.
3) Remove washer 2 ❺, then pull out the RVS cam gear ❻.

**[Precautions on remounting]**

- ○ The holes ❼ in the chassis and in the RVS cam gear ❻ must match up. Also, make sure to match up the holes ❾ on the cam gear, press ❽ and the chassis.
- ○ The spring ❿ must be hooked as shown in Fig. A below.
- ○ Clean the surface of the RVS arm ass'y ❹ where a tape is attached.
- ○ Apply 1/2 drop of lubricant to the shaft ⓫.

**[Adjustment after replacement]**

- ○ Perform tape path adjustments as described in 4-1.

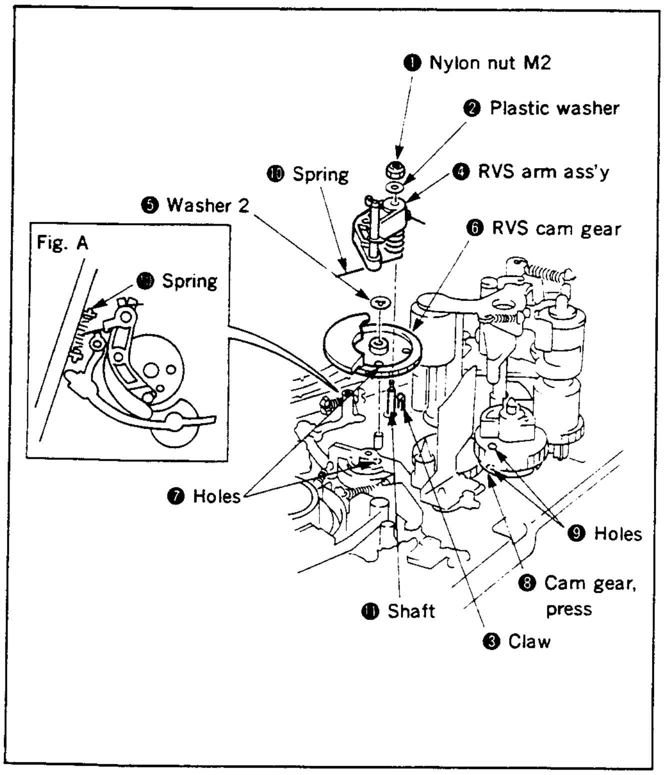

❶ Nylon nut M2
❷ Plastic washer
❿ Spring
❹ RVS arm ass'y
❺ Washer 2
❻ RVS cam gear
Fig. A
❿ Spring
❼ Holes
❾ Holes
❽ Cam gear, press
⓫ Shaft
❸ Claw

Fig. 3-14.

## 3-9. GUIDE No. 7 (Fig. 3-15)

1) Remove the nylon nut M3 ❶.
2) Pull out guide flange No. 7 ❷, guide sleeve No. 7 ❸, guide flange No. 7 ❹ and compression coil spring ❺ in the given order.

**[Precautions on remounting]**

- ○ Clean the surface of the guide sleeve No. 7 ❸ where the tape is attached.
- ○ Adjust the height of guide No. 7 to the height shown in Fig. A below.

**[Adjustment after replacement]**

- ○ Perform tape path adjustments as described in 4-1.

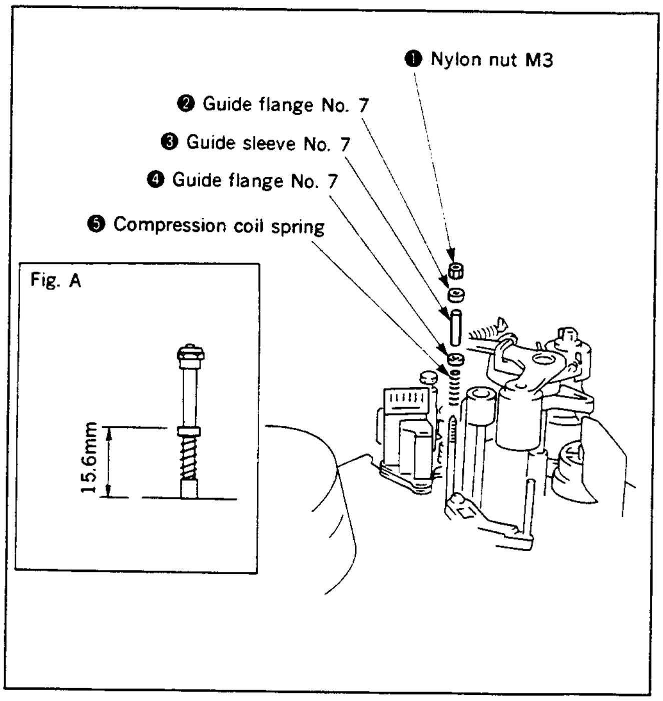

❶ Nylon nut M3
❷ Guide flange No. 7
❸ Guide sleeve No. 7
❹ Guide flange No. 7
❺ Compression coil spring
Fig. A
15.6mm

Fig. 3-15.

### 3-10. S-BRAKE ASS'Y, T-BRAKE ASS'Y (Fig. 3-16)

1) Remove the spring ❶.
2) Disengage the claw ❷, then pull out the S-brake ass'y ❸.
3) Disengage the claw ❹, then pull out the T-brake ass'y ❺.

**[Precautions on remounting]**

- ○ Do not touch the brake shoes for the respective S-brake ❸ and T-brake ❺ assy's directly with your fingers.
- ○ Do not hold on to the S-brake ❸ and T-brake ❺ assy's by the arms when inserting them.
- ○ The T-brake ass'y ❺ must be positioned above the S-brake ass'y ❸ as shown in Fig. A below.

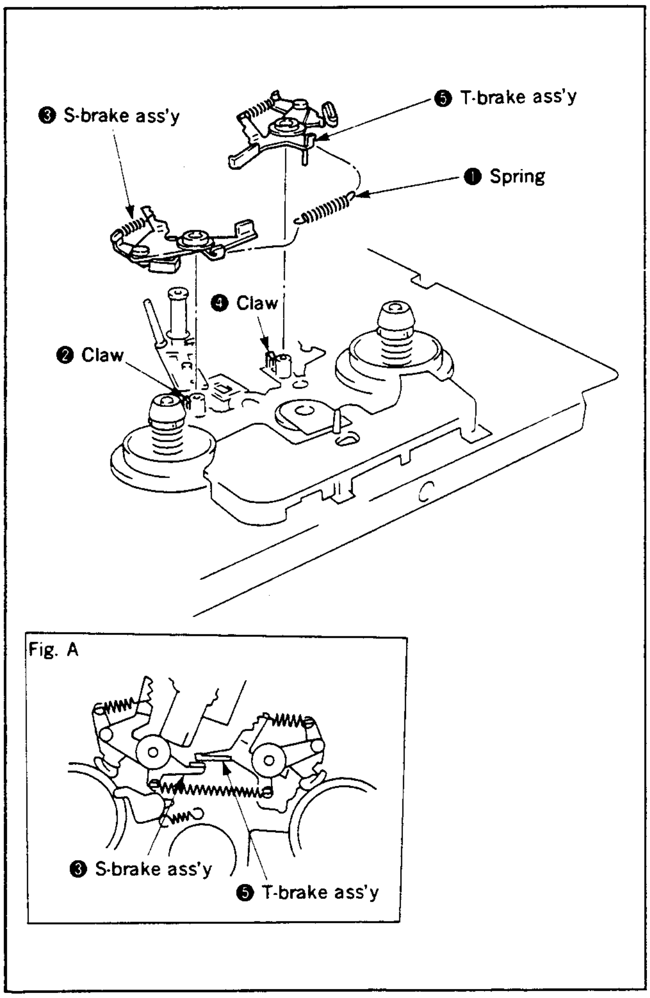

❸ S-brake ass'y
❺ T-brake ass'y
❶ Spring
❹ Claw
❷ Claw
Fig. A
❸ S-brake ass'y
❺ T-brake ass'y

Fig. 3-16.

### 3-11. T-SOFT BRAKE ASS'Y REV BRAKE ARM (Fig. 3-17)

1) Remove the end of the spring ❶ from the REV brake arm ❷.
2) Remove the end of the spring ❸ from the chassis.
3) Disengage the claw ❹, then pull out the T-soft brake ass'y ❺.
4) Disengage the claw ❻, then pull out the REV brake arm ❷.

**[Precautions on remounting]**

- ○ Do not touch the brake shoe of the T-soft brake ass'y ❺ directly with your fingers.

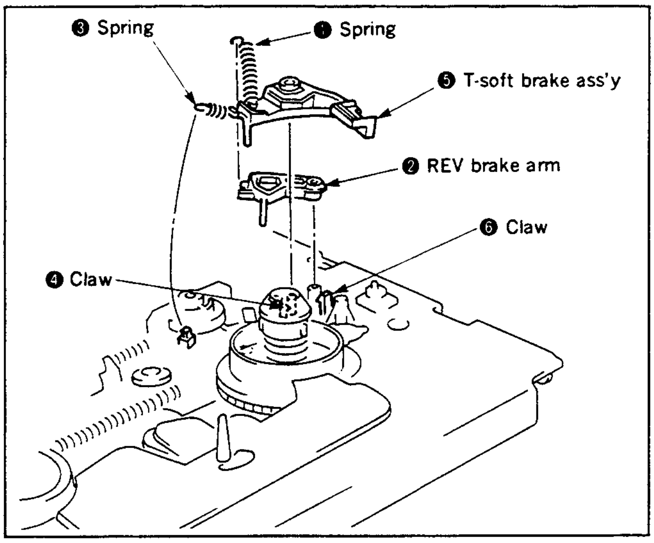

❸ Spring
❶ Spring
❺ T-soft brake ass'y
❷ REV brake arm
❻ Claw
❹ Claw

Fig. 3-17.

### 3-12. S-SOFT BRAKE ARM ASS'Y (Fig. 3-18)

1) Unhook the end of the spring ❶ from the chassis.
2) Disengage the claw ❷, then pull out the S-soft brake arm ass'y ❸.

**[Precautions on remounting]**

- ○ The S-soft brake arm ass'y must not clamp down the tension regulator band ass'y ❹ nor be positioned below the tension regulator band ❹.

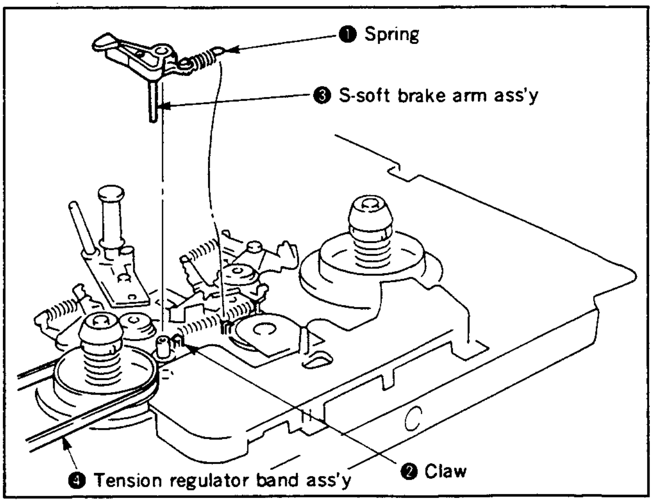

❶ Spring
❸ S-soft brake arm ass'y
❹ Tension regulator band ass'y
❷ Claw

Fig. 3-18.

### 3-13. S-GUIDE AND T-GUIDE ROLLER ASSY'S (Fig. 3-19)

1) Loosen the setscrew ❶, then remove the S-guide roller ass'y ❷ by turning it in the direction of the arrow Ⓐ.
2) Loosen the setscrew ❸, then remove the T-guide roller ass'y ❹ by turning it in the direction of arrow Ⓑ.

**[Precautions on remounting]**

○ Clean the surfaces of the S-guide roller ❷ and T-guide roller assy's ❹ where a tape is attached.

**[Adjustment after replacement]**

○ Perform tape path adjustments as described in 4-1.

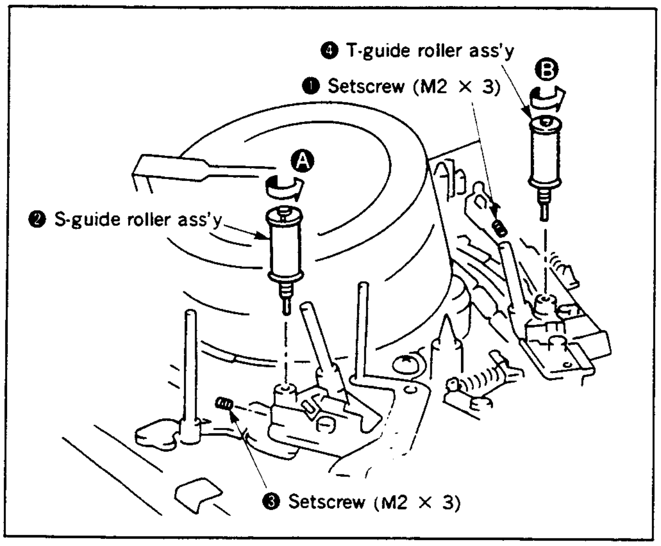

❹ T-guide roller ass'y
Ⓑ
❶ Setscrew (M2 × 3)
Ⓐ
❷ S-guide roller ass'y
❸ Setscrew (M2 × 3)

Fig. 3-19.

### 3-14. REEL LOCK RELEASE AND REW GEAR (Fig. 3-20)

1) Disengage the two claws ❶, then remove the reel lock release ❷ along with the spring ❸ (while the spring is still attached).
2) Next, pull out the REW gear ❹ with the spring bearing ❺ still attached).

**[Precautions on remounting]**

○ Make sure that the small thrust bearing ❻ remains attached.

○ Make sure that the two claws ❶ lock the real lock release ❷ in place.

○ Apply 1/2 drop of lubricant to the shaft ❼.

○ Make sure that the spring ❸ adheres to the reel lock release ❷ and that it fits inside the rib of the REW gear ❹.

○ Mount the REW gear ❹ by meshing it with gear ❽.

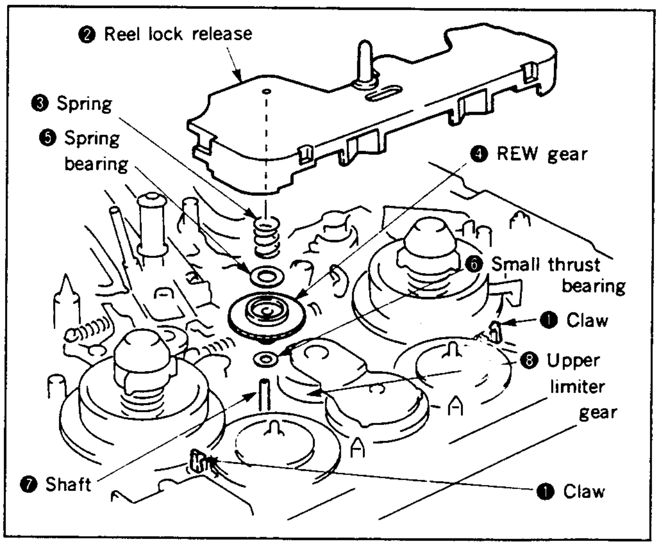

❷ Reel lock release
❸ Spring
❺ Spring bearing
❹ REW gear
❻ Small thrust bearing
❶ Claw
❽ Upper limiter gear
❼ Shaft
❶ Claw

Fig. 3-20.

### 3-15. TENSION REGULATOR ARM ASS'Y, TENSION REGULATOR BAND ASS'Y (Fig. 3-21)

1) Remove the reel lock release ass'y. (Refer to Fig. 3-14.)
2) Disengage the three claws marked ❶ and the claw marked ❷, then remove the tension regulator band ass'y ❸.
3) Unhook the end of the spring ❹ from the chassis.
4) Disengage the claw ❺, then pull out the tension regulator arm ass'y ❻.

**[Precautions on remounting]**

○ Roll up the tension regulator band ❸ on the S-reel by turning the S-soft brake arm ass'y ❼ in the direction of the arrow.

○ Hook the spring ❹ at the center of the spring hook ❽.

○ Do not touch the brake shoe of the tension regulator band ass'y ❸ directly with your fingers.

○ Mount the tension regulator arm ass'y ❻ at the position shown in Fig. A below.

**[Adjustment after replacement]**

○ Check the back tension. (Refer to 4-1-1.)

○ Perform tape path adjustments as described in 4-1.

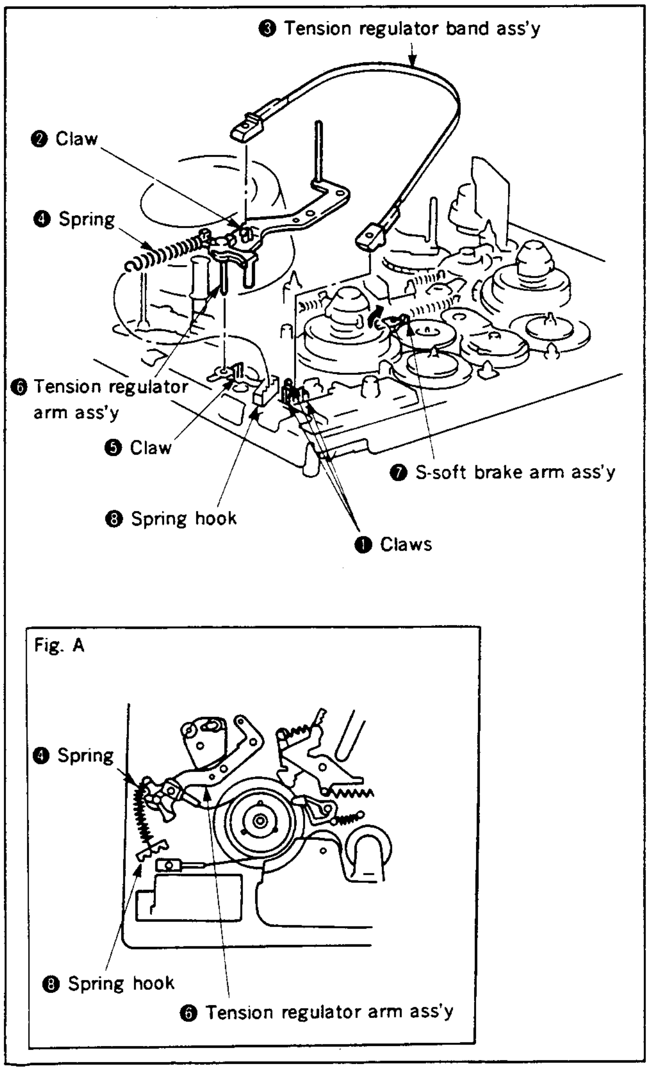

❸ Tension regulator band ass'y
❷ Claw
❹ Spring
❻ Tension regulator arm ass'y
❺ Claw
❼ S-soft brake arm ass'y
❽ Spring hook
❶ Claws
Fig. A
❹ Spring
❽ Spring hook
❻ Tension regulator arm ass'y

Fig. 3-21.

### 3-16. S TAKE-UP ASS'Y (Fig. 3-22)

1) Remove the tension regulator arm ass'y and the tension regulator band ass'y. (Refer to 3-15.)
2) Unhook the end of the spring ❶ from the S take-up arm ❷.
3) Disengage the two claws ❸, then remove the S take-up ass'y ❹.

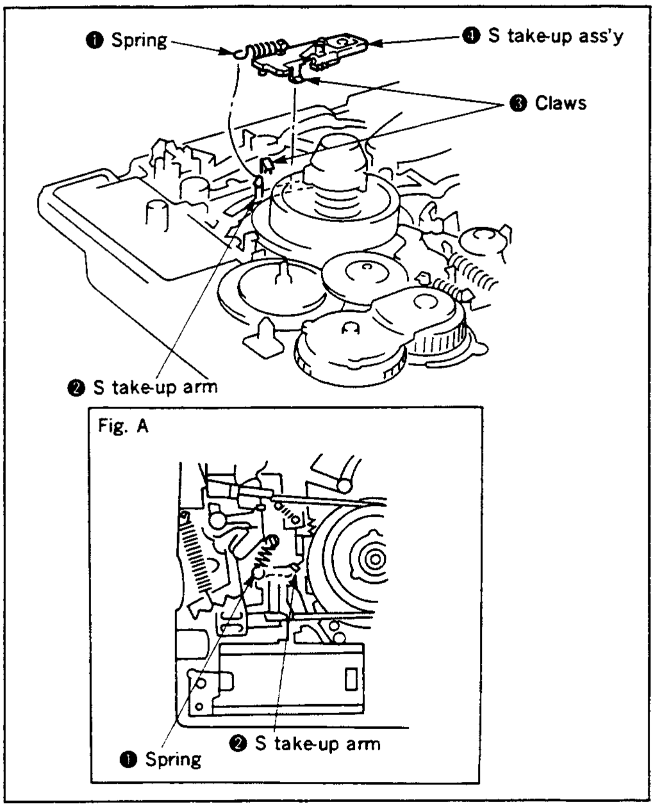

❶ Spring
❹ S take-up ass'y
❸ Claws
❷ S take-up arm
Fig. A
❶ Spring
❷ S take-up arm

Fig. 3-22.

### 3-17. S-REEL ASS'Y (Fig. 3-23)

1) Remove the S-soft brake arm ass'y. (Refer to 3-12.)
2) Remove the reel lock release. (Refer to 3-14.)
3) Remove the tension regulator band ass'y. (Refer to 3- 15.)
4) Turn the S-brake ass'y ❶ in the direction of the arrow.
5) Pull out the S-reel ass'y ❷.

**[Precautions on remounting]**

○ At least one reel stand thrust bearing ❸ must be attached (but not more than two).
○ Do not touch the outer edge of the S-reel ass'y ❷ directly with your fingers.
○ Apply 1/2 drop of lubricant over the shaft ❹.
○ Mount the S-reel ass'y ❷ while meshing it with the relay gear ❺.

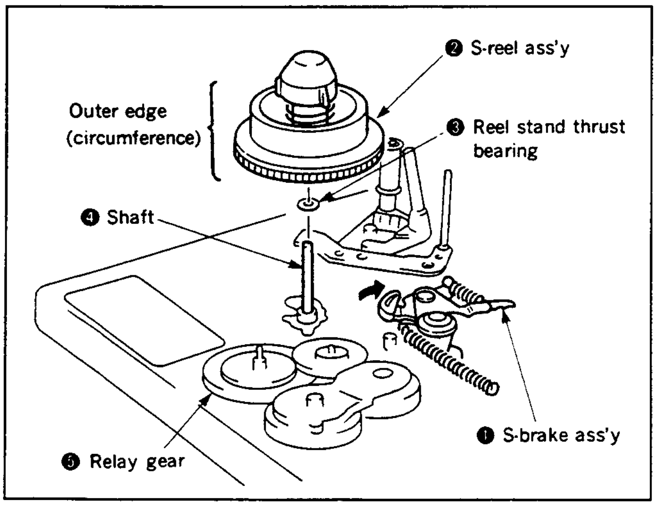

❷ S-reel ass'y
Outer edge (circumference)
❸ Reel stand thrust bearing
❹ Shaft
❺ Relay gear
❶ S-brake ass'y

Fig. 3-23.

### 3-18. T-REEL ASS'Y (Fig. 3-24)

1) Remove the T-soft brake ass'y. (Refer to 3-11.)
2) Remove the reel lock release ass'y. (Refer to 3-14.)
3) Turn the T-brake ass'y ❶ in the direction of the arrow.
4) Pull out the T-reel ass'y ❷.

**[Precautions on remounting]**

○ At least one reel stand thrust bearing ❸ must be attached (but not more than two).
○ Do not touch the outer edge of the T-reel ass'y ❷ directly with your fingers.
○ Apply 1/2 drop of lubricant on the shaft ❹.
○ Mount the T-reel ass'y ❷ while meshing it with the relay gear ❺.

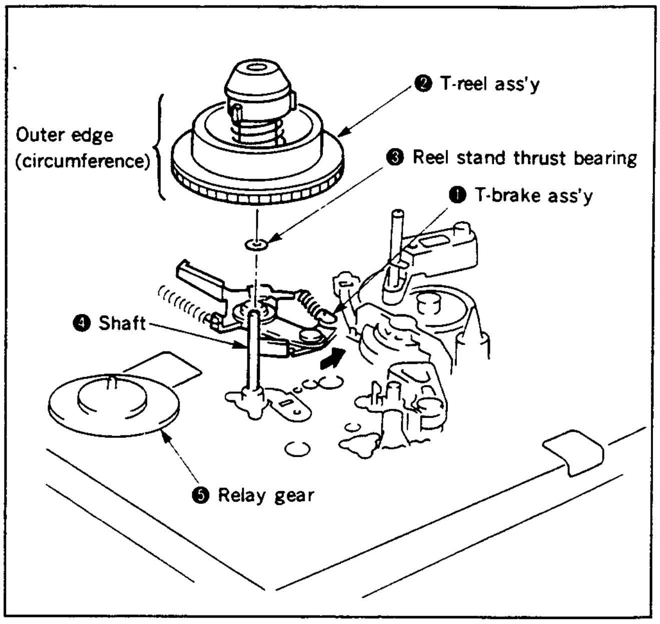

❷ T-reel ass'y
Outer edge (circumference)
❸ Reel stand thrust bearing
❶ T-brake ass'y
❹ Shaft
❺ Relay gear

Fig. 3-24.

### 3-19. PENDULUM ARM ASS'Y (Fig. 3-25)

1) Remove the reel lock release ass'y. (Refer to 3-14.)
2) Remove the washer 2 ❶, then pull out the pendulum arm ass'y ❷.

**[Precautions on remounting]**

○ Fit the boss on the pendulum cap ❸ into the gap in the pendulum slide plate ❹.
○ The plastic slider ❺ must be attzched.
○ Apply 1/2 drop of lubricant on the shaft ❻.
○ Mount the pendulum arm ass'y ❷ by meshing it with the upper limiter gear ❼.

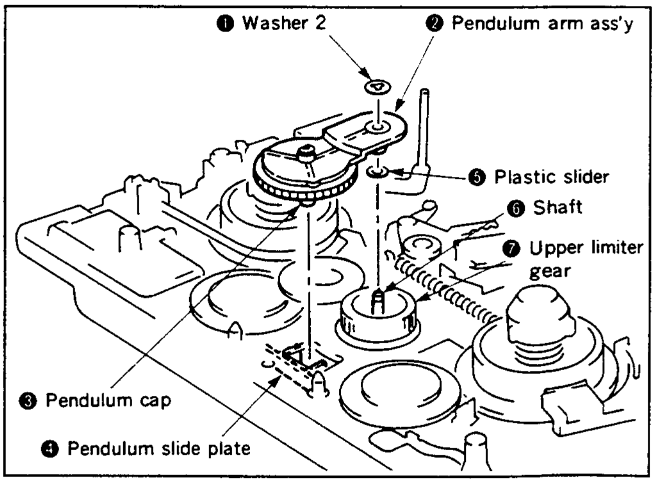

❶ Washer 2
❷ Pendulum arm ass'y
❺ Plastic slider
❻ Shaft
❼ Upper limiter gear
❸ Pendulum cap
❹ Pendulum slide plate

Fig. 3-25.

### 3-20. RELAY GEAR (Fig. 3-26)

1) Remove the reel lock release and REW gear. (Refer to 3-14.)
2) Remove the S-reel ass'y. (Refer to 3-17.)
3) Remove the T-reel ass'y. (Refer to 3-18).
4) Pull out the two relay gears ❶.

**[Precautions on remounting]**

○ The relay gears ❶ must rotate smoothly after remounting.

○ Apply 1/2 drop of lubricant to the respective shafts ❷.

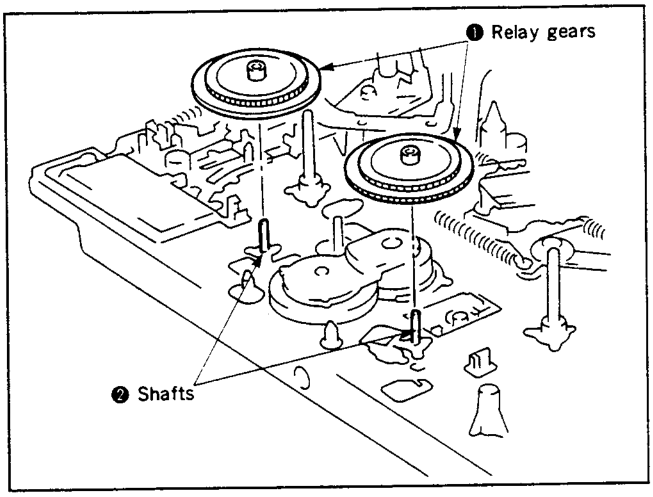

❶ Relay gears
❷ Shafts

Fig. 3-26.

### 3-21. ADJUSTER ARM ASS'Y (Fig. 3-27)

1) Remove screw ❶.
2) Remove washer ❻.
3) Remove the end of the spring ❷ hooked to the chassis.
4) Remove the end of the timing belt ❸ from the capstan motor arm ass'y.
5) Disengage the claw ❹, then remove the adjuster arm ass'y.

**[Precautions on remounting]**

○ First mount the adjuster arm ass'y ❺, timing belt ❸ and spring ❷, then attach the washer ❻ and fasten the screw ❶.

○ The screw fastening torque must be within 5kg•cm (±1kg•cm).

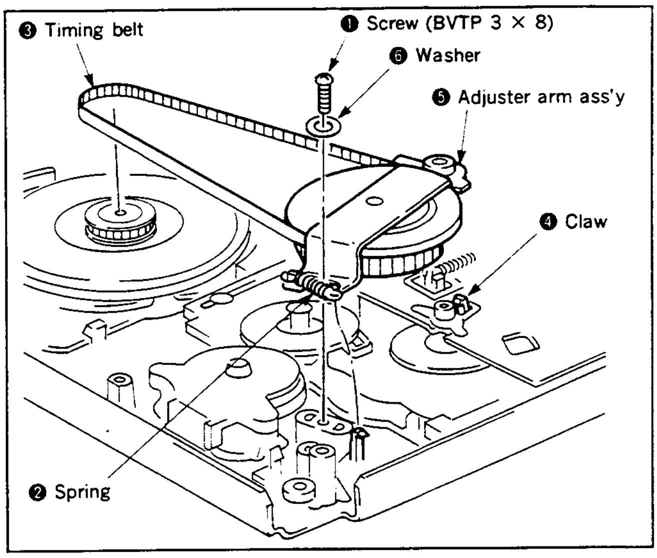

❸ Timing belt
❶ Screw (BVTP 3 × 8)
❻ Washer
❺ Adjuster arm ass'y
❹ Claw
❷ Spring

Fig. 3-27.

### 3-22. CAP BRAKE ASS'Y (Fig. 3-28)

1) Loosen the screw ❶, then push the timing belt ❷ in the direction of the arrow.
2) Unhook the end of the spring ❸ from the chassis.
3) Disengage claw ❹, then pull out CAP brake ass'y ❺.

**[Precautions on remounting]**

○ Do not touch the brake shoe of the CAP brake ass'y ❺ directly with your fingers.

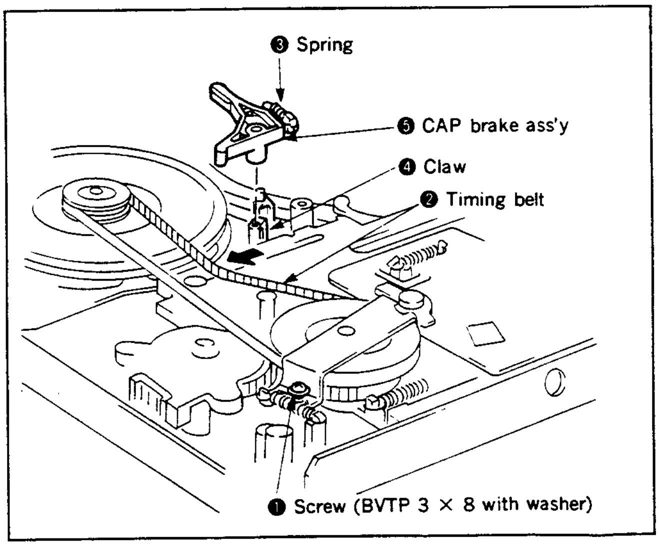

❸ Spring
❺ CAP brake ass'y
❹ Claw
❷ Timing belt
❶ Screw (BVTP 3 × 8 with washer)

Fig. 3-28.

### 3-23. CAPSTAN MOTOR (Fig. 3-29)

1) Turn the ACE ass'y ❶ in the direction of arrow Ⓐ as shown in Fig. A below, then remove three screws ❷.
2) Remove screw ❸, then remove the rotor clamp ❹.
3) Turn the CAP brake ass'y ❺ in the direction of arrow Ⓑ, then pull out the capstan motor ❻.

**[Precautions on remounting]**

- ○ Clean the section of the capstan motor ❻ where the tape is attached.
- ○ Do not touch the brake shoe of the CAP brake ass'y ❺ directly with your fingers.
- ○ Of the three screws ❷, first fasten screw A temporarily, then fasten screws B and C firmly, followed by screw A.
- ○ The screw fastening torque must be within 3kg•cm ± 1kg•cm.

**[Adjustments after mounting]**

- ○ Perform tape path adjustments as described in 4-1.

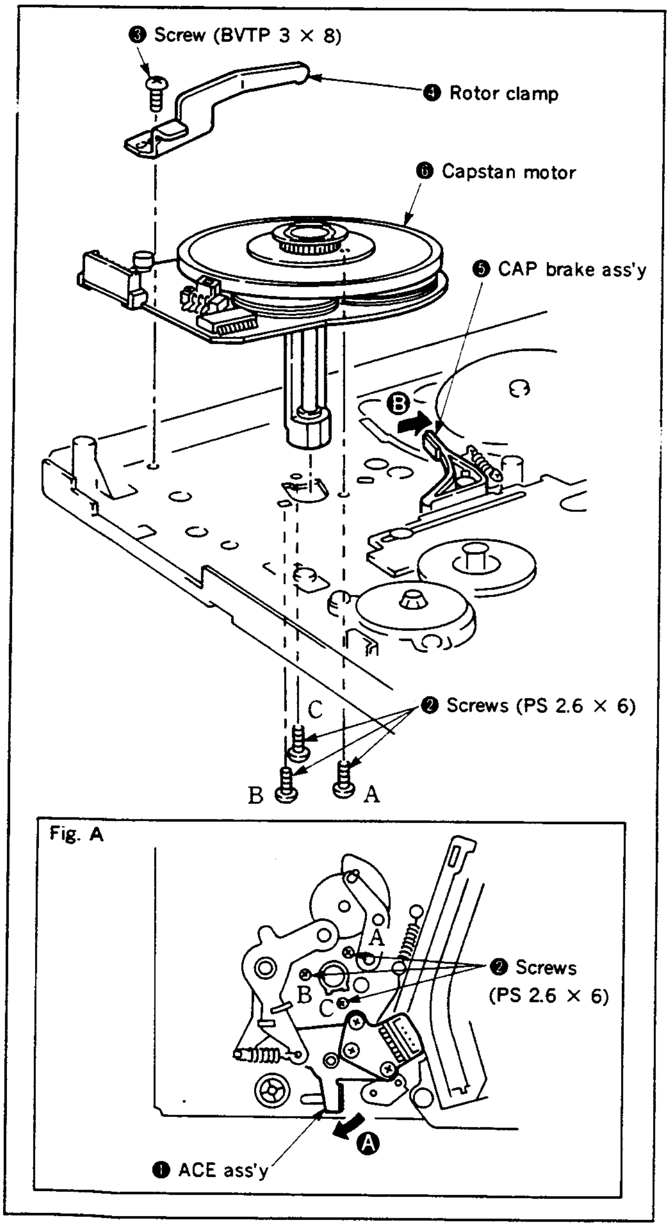

❸ Screw (BVTP 3 × 8)
❹ Rotor clamp
❻ Capstan motor
❺ CAP brake ass'y
Ⓑ
C
❷ Screws (PS 2.6 × 6)
B
A
Fig. A
A
B
C
❷ Screws (PS 2.6 × 6)
Ⓐ
❶ ACE ass'y

Fig. 3-29.

### 3-24. ROTARY SWITCH (Fig. 3-30)

1) Remove the adjuster arm ass'y. (Refer to 3-21.)
2) Remove the screws ❶ and ❷, then pull out the rotary switch ❸.

**[Precautions on remounting]**

- ○ Match up the ● mark on the rotary switch ❸ with the ▲ mark on the RKB cam gear ❹ as shown in Fig. A.
- ○ Match up holes ❻ on the pendulum arm ❺ and the chassis.

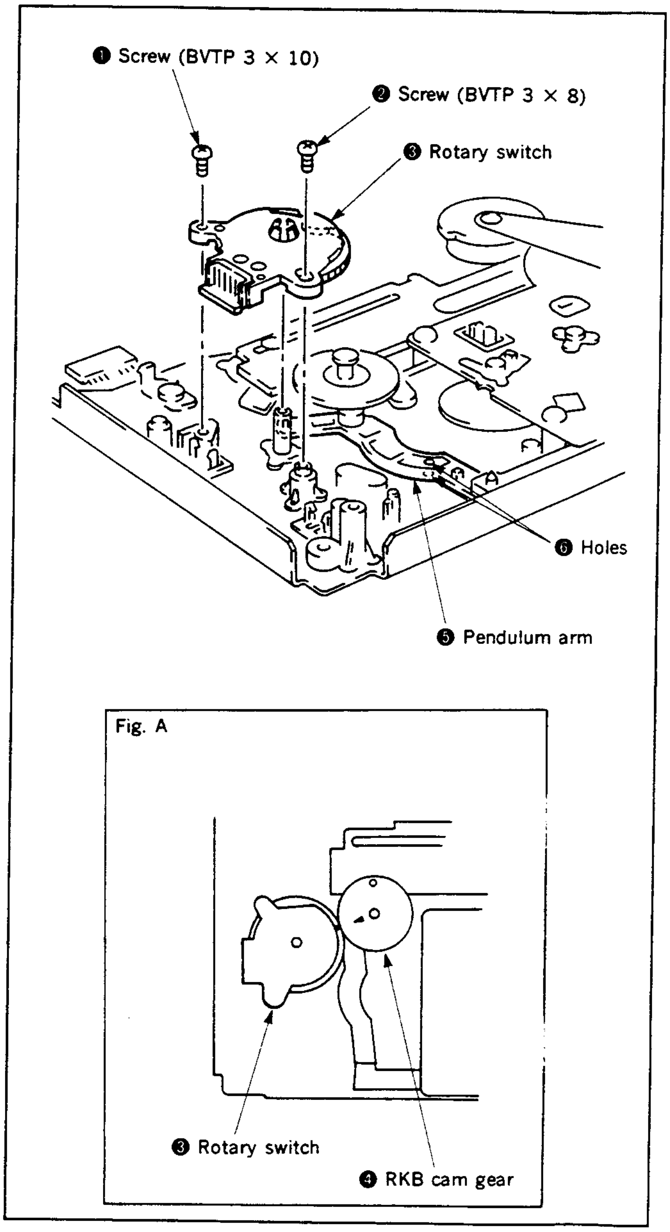

❶ Screw (BVTP 3 × 10)
❷ Screw (BVTP 3 × 8)
❸ Rotary switch
❻ Holes
❺ Pendulum arm
Fig. A
❸ Rotary switch
❹ RKB cam gear

Fig. 3-30.

## 3-25. RKB CAM GEAR (Fig. 3-31)

1) Remove the adjuster arm ass'y. (Refer to 3-22.)
2) Remove washer 2 ❶, then pull out the RKB cam gear ❷.

**[Precautions on remounting]**

- ○ When the limiter arm ❸ is pushed in the direction of the arrow, the pin must fit into the notch on the RKB cam gear ❷.
- ○ The ■ mark on rotary switch ❺ must match up with the ◀ mark on the RKB cam gear ❷ as shown in Fig. A.
- ○ Apply 1/2 drop of lubricant to shaft ❻.
- ○ Match up the holes ❹ on the RKB cam gear ❷ and the mode slide plate.

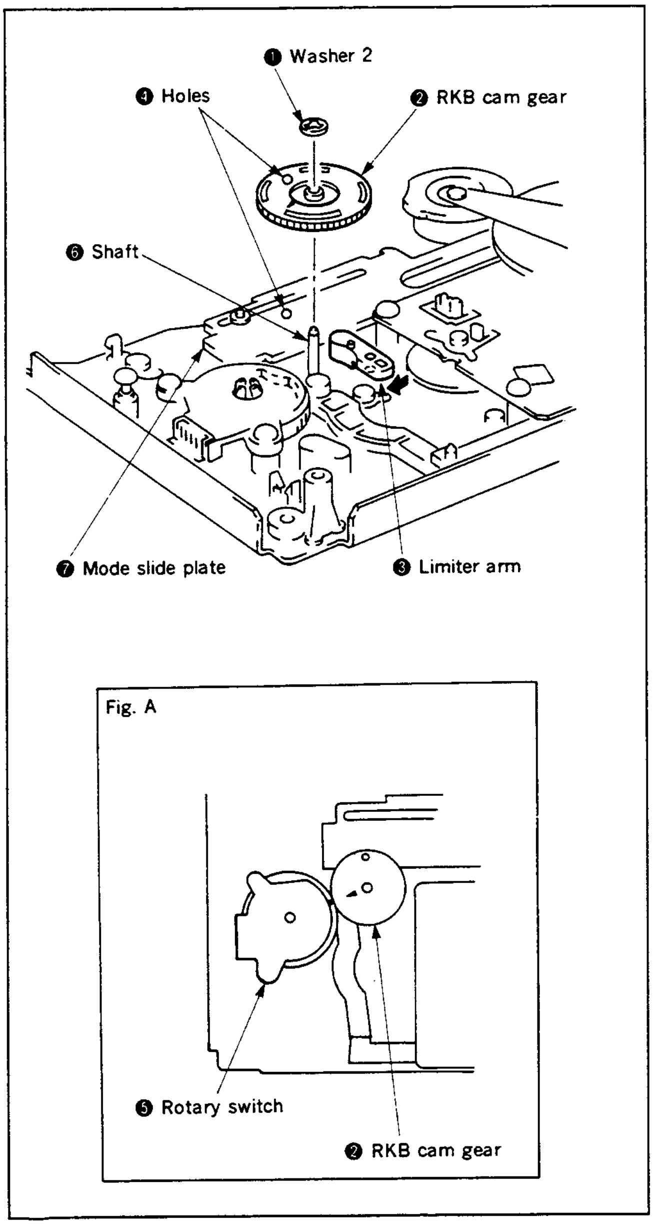

❶ Washer 2
❹ Holes
❷ RKB cam gear
❻ Shaft
❼ Mode slide plate
❸ Limiter arm
Fig. A
❺ Rotary switch
❷ RKB cam gear

Fig. 3-31.

## 3-26. SUB-CHASSIS ASS'Y (Fig. 3-32)

1) Remove the reel lock release arm and REW gear. (Refer to 3-15.)
2) Remove the pendulum arm ass'y. (Refer to 3-19.)
3) Remove the adjuster arm ass'y. (Refer to 3-22.)
4) Remove the three screws ❶, then remove sub-chassis ass'y ❷.

**[Precautions on remounting]**

- ○ The switching arm ❸ must be switched in the direction of the arrow.
- ○ The screws must be fastened in order of a, b and c.
- ○ Mount the sub-chassis carefully so as not to damage the gear.
- ○ The corner edge of the lug terminal ❹ must fit into the gap between the chassis ass'y ❷ and mechanism chassis.

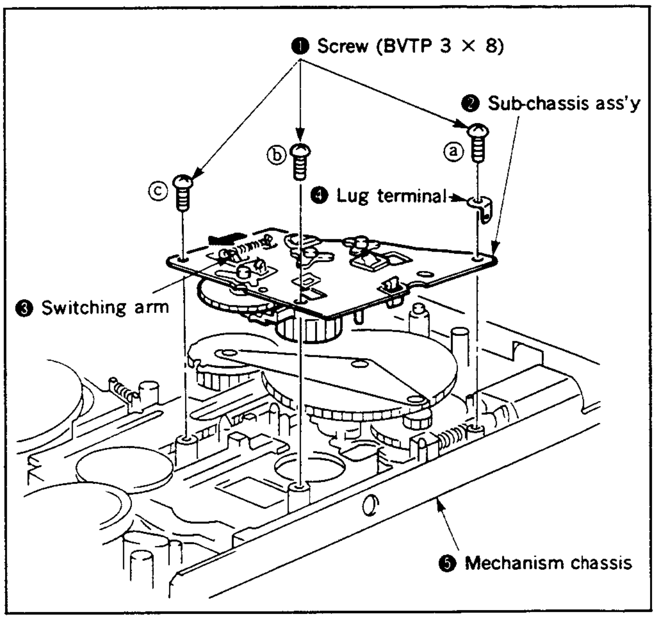

❶ Screw (BVTP 3 × 8)
❷ Sub-chassis ass'y
ⓑ
ⓐ
ⓒ
❹ Lug terminal
❸ Switching arm
❺ Mechanism chassis

Fig. 3-32.

### 3-27. PENDULUM SLIDE PLATE, PENDULUM ARM (Fig. 3-33)

1) Remove the rotary switch. (Refer to 3-24.)
2) Remove the RKB cam gear. (Refer to 3-25.)
3) Remove the sub-chassis ass'y. (Refer to 3-26.)
4) Disengage the two claws ❶, then pull out the pendulum slide plate ❷.
5) Unhook the spring ❸.
6) Disengage the claw ❹, then pull out pendulum arm ❺.

**[Precautions on remounting]**

○ The shaft ❻ must fit into hole ❼.

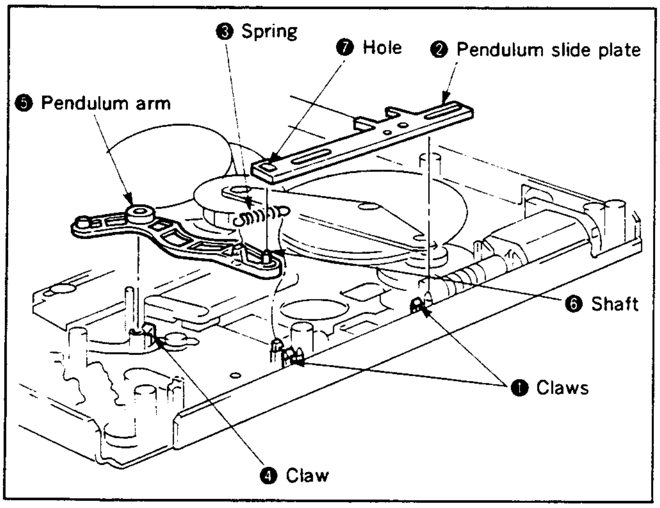

❸ Spring
❼ Hole
❷ Pendulum slide plate
❺ Pendulum arm
❻ Shaft
❶ Claws
❹ Claw

Fig. 3-33.

### 3-28. THE LIMITER ARM AND LIMITER SLIDE PLATE (Fig, 3-24)

1) Remove the RKB cam gear. (Refer to 3-25.)
2) Remove the sub-chassis. (Refer to Fig. 3-26.)
3) Disengage the claw ❶, then pull out the limiter arm ❷.
4) Disengage the two claws ❸, then pull out the limiter slide plate ❹.

**[Precautions on remounting]**

○ The shaft ❺ must fit into the hole ❻.

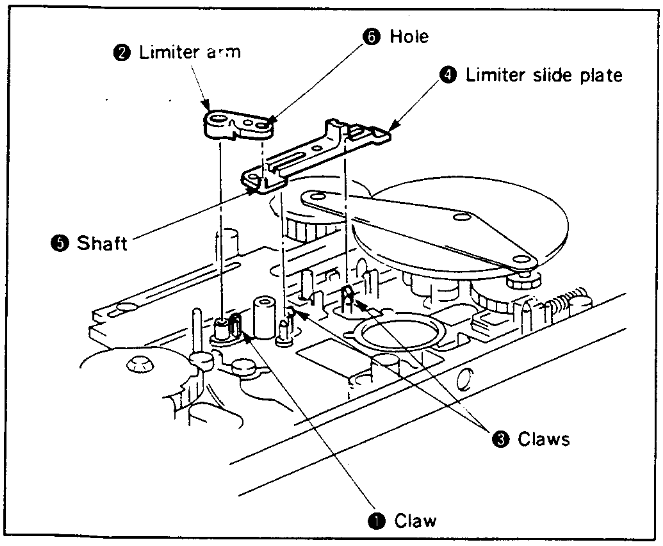

❷ Limiter arm
❻ Hole
❹ Limiter slide plate
❺ Shaft
❸ Claws
❶ Claw

Fig. 3-34.

### 3-29. CAM MOTOR (Fig. 3-35)

1) Remove the sub- chassis ass'y. (Refer to 3-26.)
2) Disengage the six claws ❶, then remove the cam motor ❷ and worm gear ❸.

**[Precautions on remounting]**

○ Check the meshing of cam motor ❷ and worm gear ❸.

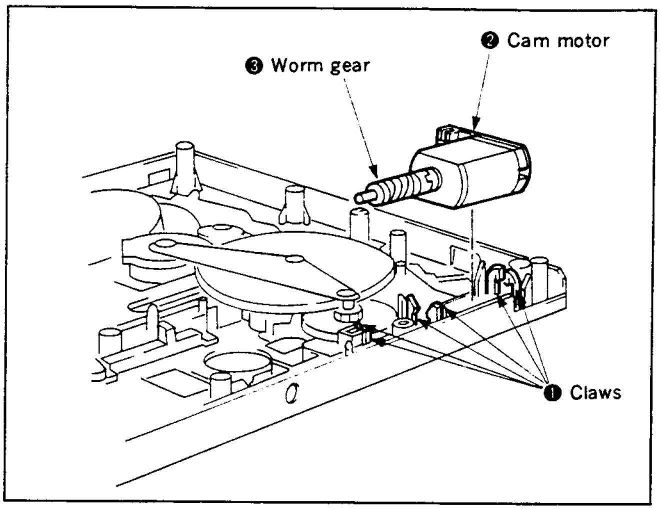

❷ Cam motor
❸ Worm gear
❶ Claws

Fig. 3-35.

### 3-30. CAM GEAR (Fig. 3-36)

1) Remove the three washers 2 ❶, then pull out the cam gear holder ❷.
2) Pull out the cam gear ❸.

**[Precautions on remounting]**

○ Match up the right loading gear ass'y, the tension regulator arm, the S take-up arm, the work wheel, the brake arm and the mode slide plate with respective holes ❹ to ❾ on the chassis in that order.

○ Match up the hole ❿ on the mode slide plate with the hole ❿ in cam gear ❸.

○ Apply 1/2 drop of lubricant to the shaft ⓫.

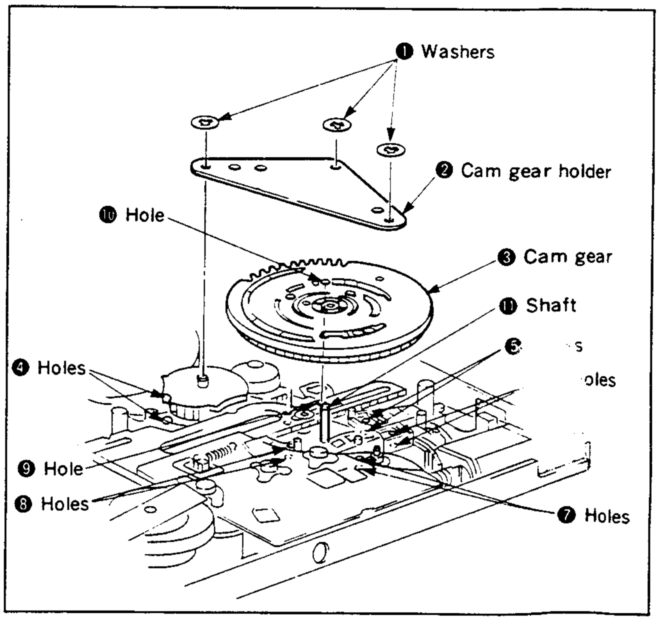

❶ Washers
❷ Cam gear holder
❿ Hole
❸ Cam gear
⓫ Shaft
❹ Holes
s
oles
❾ Hole
❽ Holes
❼ Holes

Fig. 3-36.

### 3-31. TENSION REGULATOR ARM, S TAKE-UP ARM (Fig. 3-37)

1) Remove the cam gear. (Refer to 3-30)
2) Disengage the claw ❶, then remove the tension regulator arm ❷.
3) Remove the end of the spring ❸ from the S take-up arm ❹.
4) Disengage the claw ❺, then pull out S take-up arm ❹.

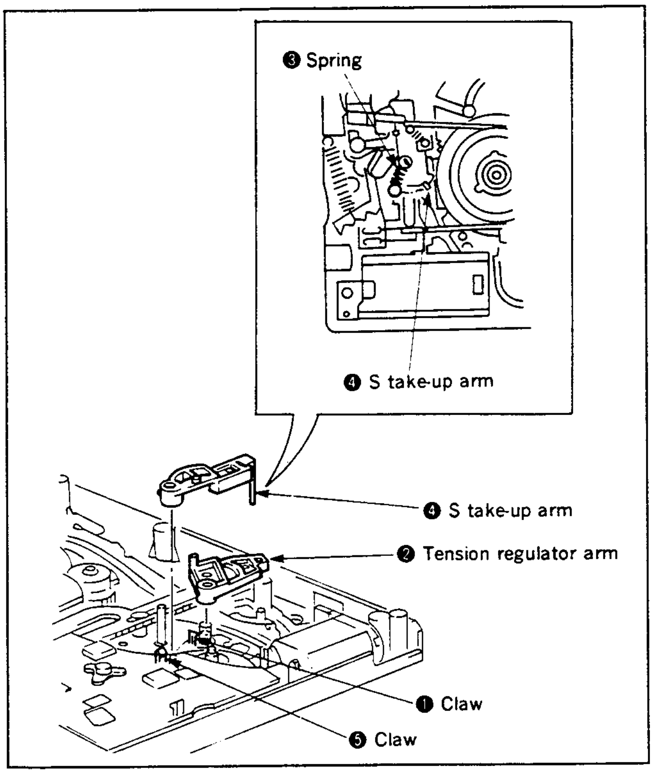

❸ Spring
❹ S take-up arm
❹ S take-up arm
❷ Tension regulator arm
❶ Claw
❺ Claw

Fig. 3-37.

### 3-32. MODE SLIDE PLATE, RVS RELAY GEAR (Fig. 3-38)

1) Remove the RKB cam gear. (Refer to 3-25.)
2) Remove the cam gear. (Refer to 3-30.)
3) Remove the two washers 2 ❶.
4) Turn the CAP brake ❷ in the direction of the arrow, then pull out mode slide plate ❸.
5) Pull out the RVS relay gear ❹.

**[Precautions on remounting]**

○ Match up the hole ❺ on the RVS relay gear ❹ with hole ❺ in the chassis.
○ Match up the holes ❻ on the mode slide plate ❸ with holes ❻ in the chassis.
○ Apply 1/2 drop of lubricant to the shaft ❼.

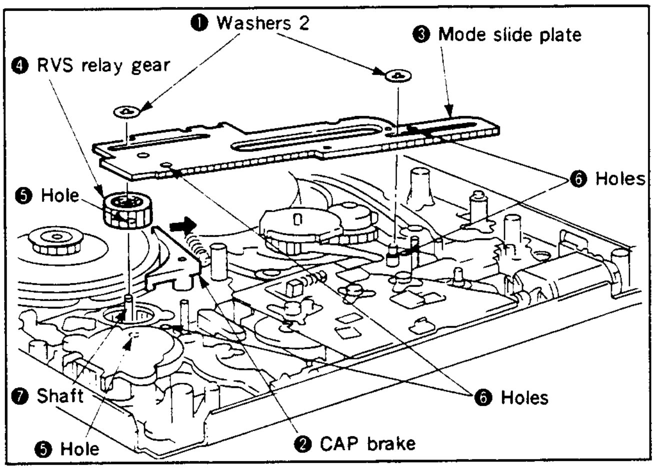

❶ Washers 2
❸ Mode slide plate
❹ RVS relay gear
❺ Hole
❻ Holes
❼ Shaft
❺ Hole
❷ CAP brake
❻ Holes

Fig. 3-38.

### 3-33. BRAKE ARM, BRAKE SLIDE PLATE (Fig. 3-39)

1) Remove the sub-chassis. (Refer to 3-26.)
2) Remove the cam gear. (Refer to 3-30.)
3) Disengage the claw ❶, then pull out the brake arm ❷.
4) Disengage the two claws ❸, then pull out the brake slide plate ❹.

**[Precautions on remounting]**

○ Insert the shaft ❺ into hole ❻.

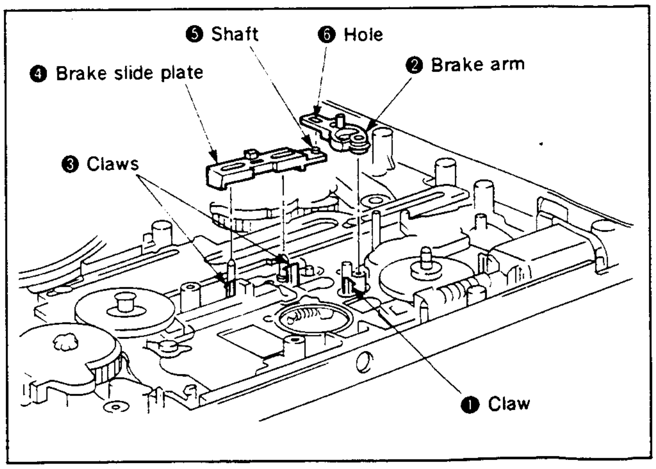

❺ Shaft
❻ Hole
❹ Brake slide plate
❷ Brake arm
❸ Claws
❶ Claw

Fig. 3-39.

## 3-34. RIGHT SHUTTLE, RIGHT LOADING GEAR ASSY'S (Fig. 3-40)

1) Remove the mode slide plate. (Refer to 3-32.)
2) Remove the plastic slider ❶, then pull out the right shuttle ass'y ❷.
3) Pull out the right loading gear ass'y ❸.

**[Precautions on remounting]**

○ Match up the ▲ mark on the right loading gear ass'y ❸ with the ▲ mark on the left loading gear ass'y ❹ as shown in Fig. A below.

○ Apply 1/2 drop of lubricant to the shaft ❺.

○ Do not hold on to the arm when pressing on the right loading gear ❸.

○ Clean the section of the right shuttle ass'y ❷ where the tape is attached.

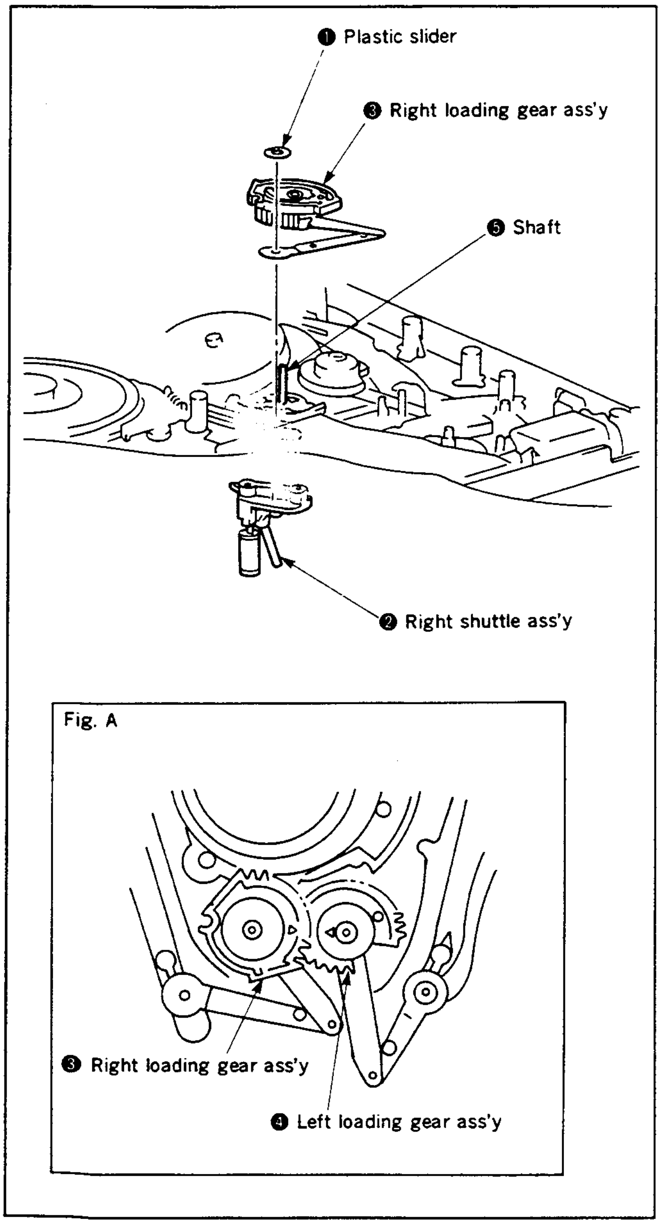

❶ Plastic slider
❸ Right loading gear ass'y
❺ Shaft
❷ Right shuttle ass'y
Fig. A
❸ Right loading gear ass'y
❹ Left loading gear ass'y

Fig. 3-40.

## 3-35. LEFT SHUTTLE ASS'Y, LEFT LOADING GEAR ASS'Y (Fig. 3-41)

1) Remove the right shuttle ass'y and right loading gear ass'y. (Refer to 3-34.)
2) Remove the plastic slider ❶, then pull out the left shuttle ass'y ❷.
3) Remove washer 2 ❸, then pull out the left loading gear ass'y ❹.

**[Precautions on remounting]**

○ Apply 1/2 drop of lubricant to shaft ❺.

○ The tension regulator arm ass'y ❻ and left shuttle ass'y ❷ must be positioned as shown in Fig. A below.

○ Do not hold on to the arm of the left loading gear ass'y ❹ when the left loading gear ass'y ❹ is pressed.

○ Clean the section of the felt shuttle ass'y ❷ where the tape is attached.

**[Adjustments after replacement]**

○ Perform tape path adjustments as described in 4-1.

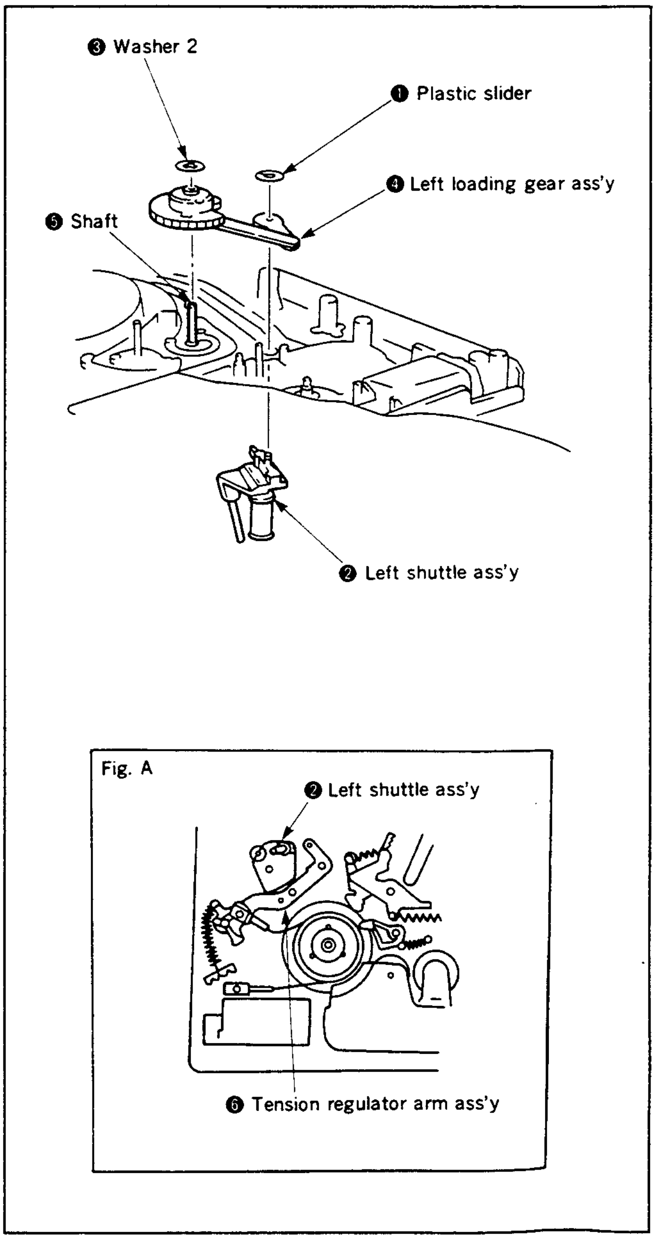

❸ Washer 2
❶ Plastic slider
❹ Left loading gear ass'y
❺ Shaft
❷ Left shuttle ass'y
Fig. A
❷ Left shuttle ass'y
❻ Tension regulator arm ass'y

Fig. 3-41.

# 4. ADJUSTMENT

## 4-1. TAPE PATH ADJUSTMENT

The "Tape path" refers to the route of the tape from the supply reel disk to the take-up reel disc via the video heads. Each component part of the tape transport system, particularly the surface of parts which make direct contact with the tape must always be kept clean, free of dust, oil, scratches and so forth.

The tape path system is factory preadjusted. when parts of the tape transport system are replaced, be sure to make the required adjustments as precisely as possible in order to ensure stable tape transport.

### 4-1-1. Tension regulator position/tension adjustment (Fig. 4-1.)

**Purpose :** Stabilizes contact of the video head and the tape to maintain the tension of the tape so that it feeds at a constant level.

- **Position adjustment**

| | |
|---|---|
| Mode | Threading is completed without a cassette loaded.' (Refer to section 1-2.) |
| Adjustment locations | Tension band holder |

**[Adjustment method]**

1) Allow the unit to go through the threading procedure without a cassette loaded.
2) Set the VTR unit to playback, then turn the tension band adjuster lever so that the gap between guide No. 0 and tension arm is within 4.5±0.4mm. *(Set the unit to playback without a cassette loaded.)
3) After adjustment, go through the loading procedure once more without a cassette loaded, then check the position of the tension arm.

- **Tension adjustment**

| | |
|---|---|
| Mode | Playback |
| Measuring instrument/tool | Torque cassette |
| Adjustment locations | Position for hooking the tension spring |
| Specification | 28 to 34 g•cm |

**[Adjustment method]**

1) Playback the torque cassette.
2) Check that the center value deviation reading on the torque cassette meets with the standards.
3) When the reading is higher than the standards: Move the spring toward direction Ⓐ.
When the reading is less than the standards: Move the spring toward direction Ⓑ.

**Note :** Move the spring to the tension spring hook position and recheck the tension arm position. If the arm position is misaligned, adjust the position and tension of the tension arm.

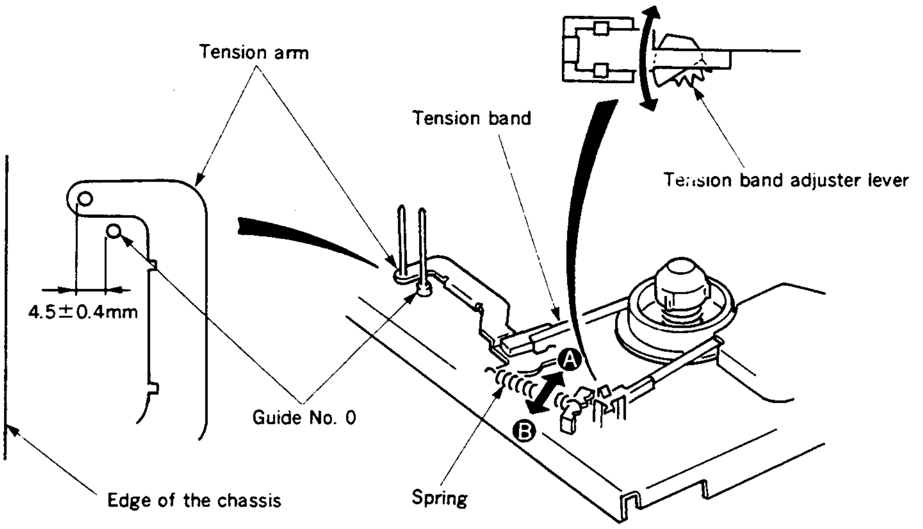


Fig. 4-1.

### 3-36. C-ROLLER ARM ASS'Y, C-ROLLER RELEASE LEVER (Fig. 3-42)

1) Disengage the claw ❶, then pull out the C-roller arm ass'y ❷.
2) Unhook the end of the spring ❸ from the chassis.
3) Disengage the two claws ❹, then pull out the C-roller release lever ❺.

**[Precautions on remounting]**

○ Mount C-roller arm ass'y ❷ so that the hole ❻ on the C-roller arm ass'y ❷ fits into the boss ❼ on the C-roller release lever ❺.

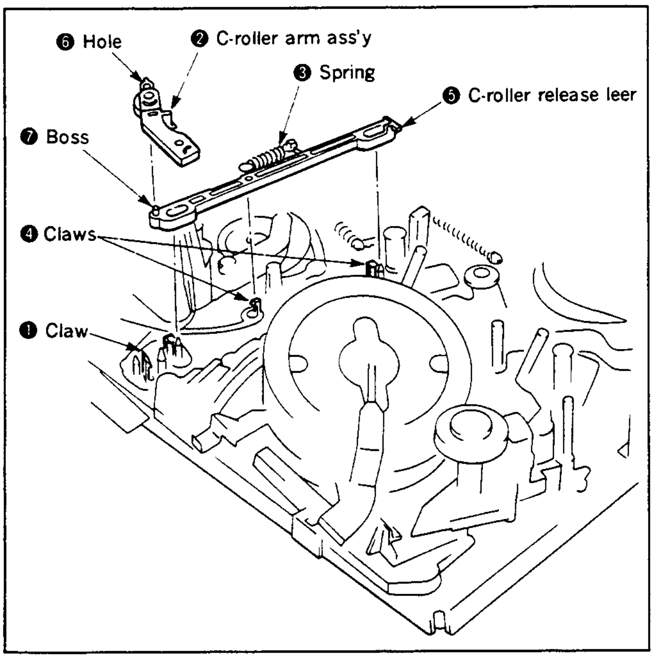

❻ Hole
❷ C-roller arm ass'y
❸ Spring
❺ C-roller release leer
❼ Boss
❹ Claws
❶ Claw

Fig. 3-42.

### 4-1-2. Height adjustment of the guide roller No. 2 (Fig. 4-2)

| | |
|---|---|
| Mode | Playback |
| Tool | Blank tape |
| Adjustment locations | Guide roller height adjuster screw |

**[Adjustment method]**

1) Load a new tape in the unit, then play it back.
2) Make sure that the lower flange of guide roller No. 2 does not curl up.
3) When the tape curls up : Turn the guide roller adjuster screw clockwise.
   When the tape does not fit into the lower flange : Turn the guide roller adjuster screw counter-clockwise.
4) After the above check, separate the tension arm from the tape, then re-attach it slowly. At this time, check if the tape curls up at the lower flange of the guide roller No. 2 and if the curl disappears within 2 seconds.
5) If curl does not disappear in two seconds: Turn the adjuster screw clockwise.
   If the tape does not curl up: Turn the adjuster screw counter-clockwise.

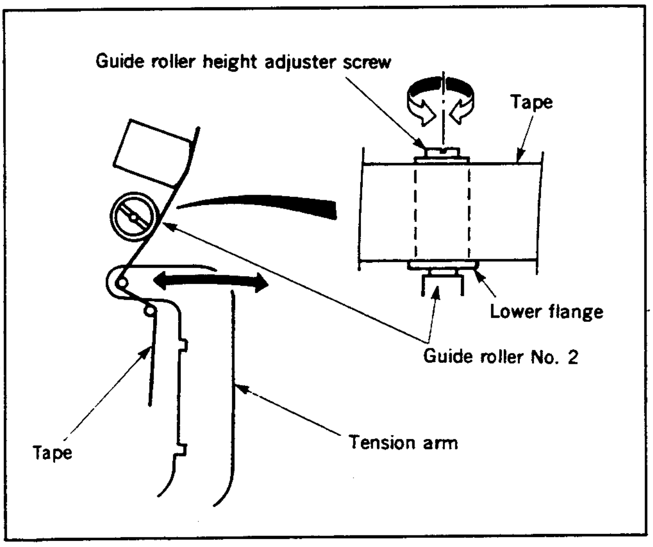


Fig. 4-2.

### 4-1-3. Height adjustment of guide roller No. 7 and the RVS arm (Fig. 4-3.)

| | |
|---|---|
| Mode | Playback |
| Tool | Blank tape |
| Adjustment locations | Height adjuster nut |

**[Adjustment method]**

1) Load the tape into the VTR and play it back, then adjust the height of the guide roller No. 7 so that the tape runs along the lower flange of guide roller No. 7.
2) If the guide roller is too low : Turn the height adjuster nut counter-clockwise.
   If the guide roller is too high : Turn the height adjuster nut clockwise.
3) Run the tape in REV, then adjust the height of the RVS arm so that the tape runs along guide roller No. 7.
4) If the tape gets caught in the upper flange of guide roller No. 7 : Turn the RVS arm height adjuster nut clockwise.
5) If the tape catches on the lower flange of guide roller No. 7 : Turn the RVS arm height adjuster nut counter-clockwise.

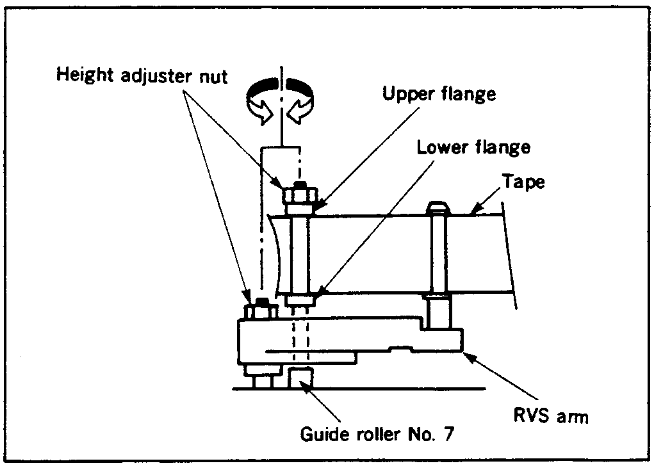


Fig. 4-3.

### 4-1-4. Height adjustment of guide rollers No. 3 and No. 6 (Fig. 4-4)

| | |
|---|---|
| Mode | Playback |
| Signal | Hi-Fi alignment tape (Hi-Fi 400Hz) |
| Measuring instrument | Oscilloscope |
| Measuring point | CH-1: Connector PB RF pin for RF PC board check.<br>CH-2: Connector RF SW P pin for RF PC board check. |
| Adjustment locations | Guide roller height adjuster screw. |

**[Adjustment method]**

1) Tracking (playback): Turn off the auto tracking, then press the tracking buttons ▽ and △ simultaneously to set the tracking at the center position.
(If adjustment is made after the drum is replaced, the tracking must be set at the max. Rf output position.)
2) Height adjuster screw: Even out the RF output waveforms.
3) Press the tracking buttons (playback), ▽ and △ alternately.
4) Check that RF output drops the same amount at the front and rear edges.

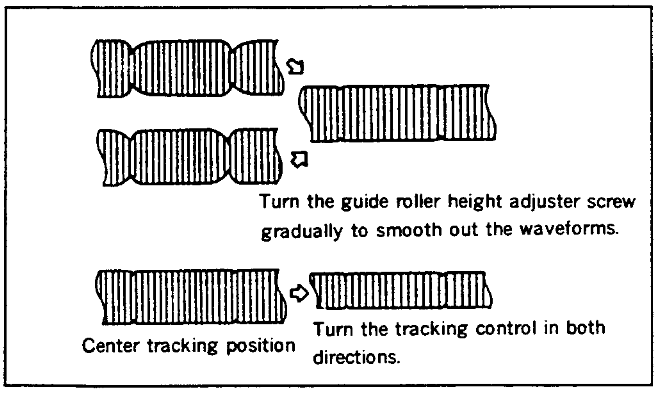

Turn the guide roller height adjuster screw gradually to smooth out the waveforms.
Center tracking position
Turn the tracking control in both directions.

Fig. 4-4.

### 4-1-5. ACE head ass'y adjustment (rough adjustment) (Figs. 4-5 and 4-6)

**Purpose:** Allows the tape to make even contact with the head for recording and playback of the specified track.

| | |
|---|---|
| Mode | Playback |
| Tool | Blank tape |
| Adjustment locations | Height adjuster nut, tilt adjuster screw |

**[Adjustment method]**

1) Mount the ACE head ass'y. At this time, adjust the height so that the height of guide flange No. 7 matches the level of the lower edge of the control head.
2) Remove the adjustment tool and load a new tape, then set the unit for playback.
3) Check that the tape does not curl or raise up noticeably near the ACE head.
4) If the yape curls up or rarises noticeably, readjust the tilt adjuster screw, the azimuth adjuster screw and the height adjuster nut.
(The height of the ACE head should be adjusted so that the lower edge of the tape is approx. 0.1 to 0.15 mm from the control head.)
5) Perform precision adjustment.

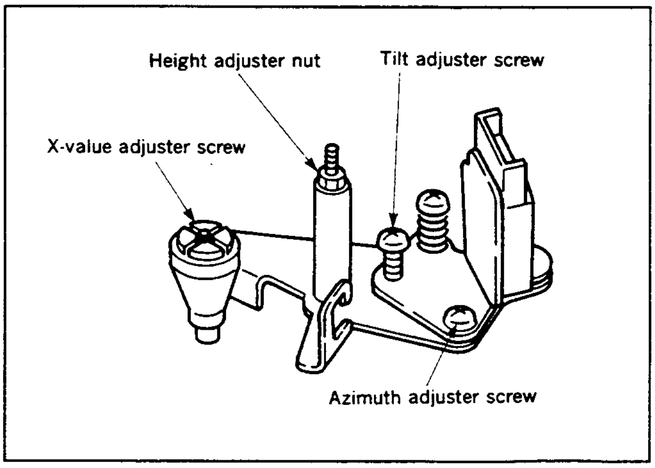

Height adjuster nut
Tilt adjuster screw
X-value adjuster screw
Azimuth adjuster screw

Fig. 4-5.

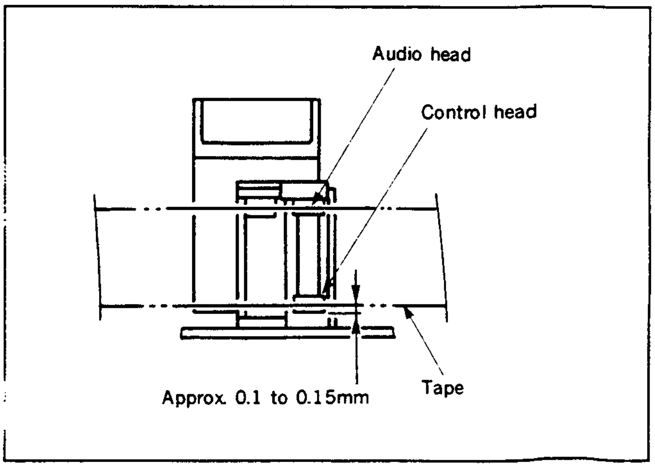

Audio head
Control head
Approx. 0.1 to 0.15mm
Tape

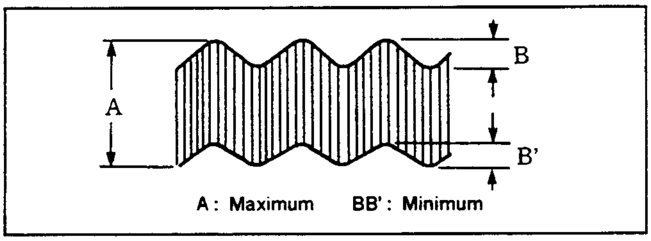
Fig. 4-6.

### 4-1-6. ACE head assembly adjustment (precision adjustment)

| | |
|---|---|
| Mode | Playback |
| Signal | Alignment tape (JVC-MH-1 1KHz) |
| Measuring instrument | Oscilloscope |
| Measuring point | Audio output terminal |
| Adjustment locations | Azimuth adjuster screw Height adjuster nut Tilt adjuster screw |

**[Adjustment method]**

1) Adjust the tilt adjuster screw in the FWD or REV mode so that the lower flange of guide No. 7 does not curl up or raise.
2) Alternately adjust the azimuth adjuster screw, the height adjuster nut, and the tilt adjuster screw to maintain even audio output at maximum with minimum deviation.



A
B
B'
A: Maximum BB': Minimum

Fig. 4-7.

### 4-1-7. X-value adjustment

**Purpose:** To obtain compatibility with other VTR.

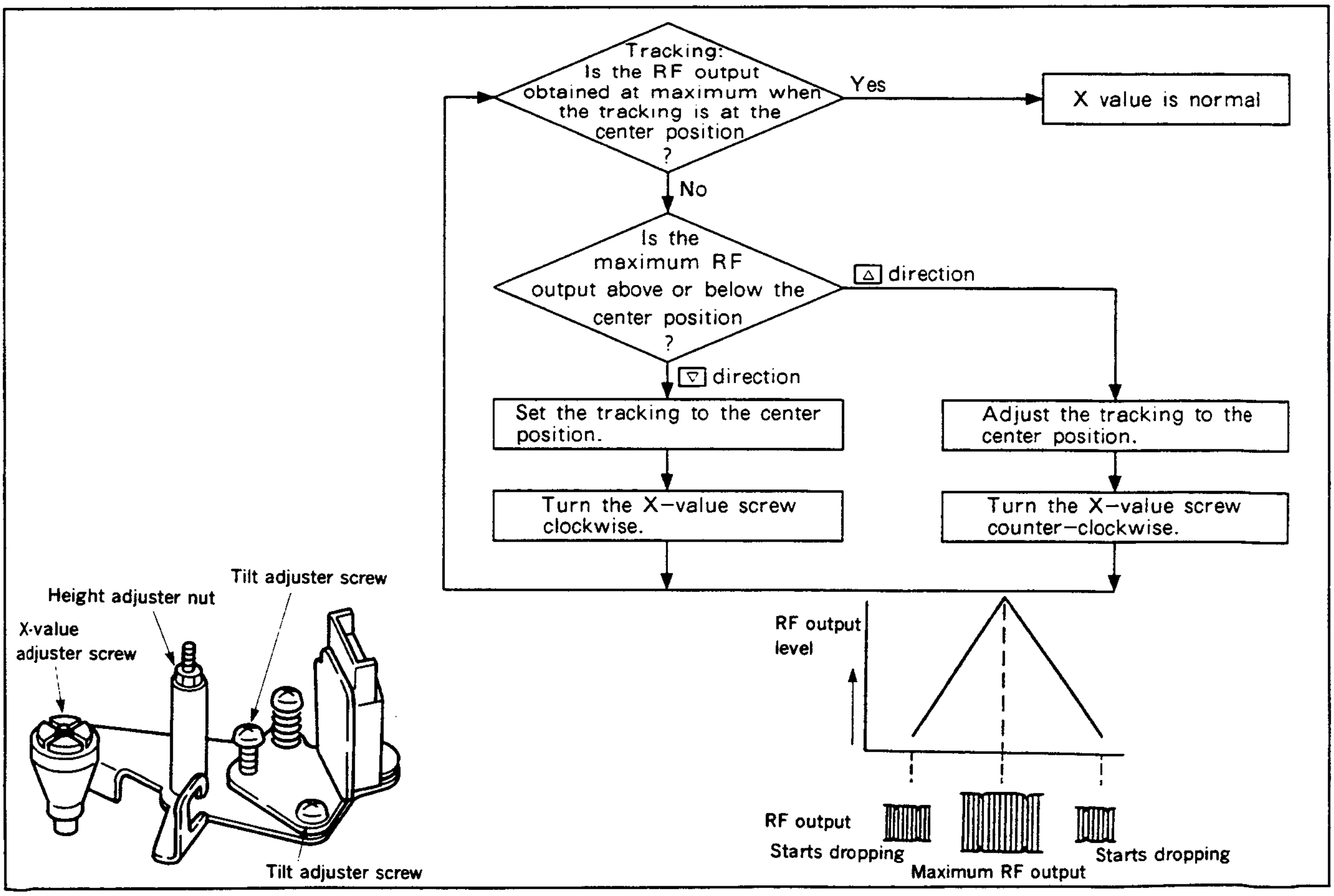
**Precaution:** Be sure to perform the preset tracking adjustment before perform this adjustment. (Refer to the Service Guide.)
Turn off the auto tracking and set the VTR for manual tracking mode.

| | |
|---|---|
| Mode | Playbadk |
| Signal | Hi-Fi alignment tape (Hi-Fi 400Hz), alignment tape (JVC-MH-1) |
| Measuring instrument | Oscilloscope |
| Measuring point | CH-1: Connector PB RF pin for RF PC board check.<br>CH-2: Connector RF SW P pin for RF PC board check.<br>(Check with the CHA head) |
| Adjustment locations | X-value adjuster screw |

**[Adjustment method]**

- **Adjustment by Hi-Fi alignment tape**

  When the tracking is set at the center position (by pressing the ▽ and △ keys simultaneously), adjust the RF output to maximum.



Tracking: Is the RF output obtained at maximum when the tracking is at the center position ?
Yes
X value is normal
No
Is the maximum RF output above or below the center position ?
△ direction
▽ direction
Set the tracking to the center position.
Turn the X-value screw clockwise.
Adjust the tracking to the center position.
Turn the X-value screw counter-clockwise.
Tilt adjuster screw
Height adjuster nut
X-value adjuster screw
Tilt adjuster screw
RF output level
RF output
Starts dropping
Maximum RF output
Starts dropping

Fig. 4-8.

- **Adjustment by Alignment tape (JVC-MH-1)**

Adjust the X-value adjuster screw so that maximum RF output is obtained and also that the RF output drops to the same position on pressing the respective ▽ and △ buttons while the tracking is set at the center position.

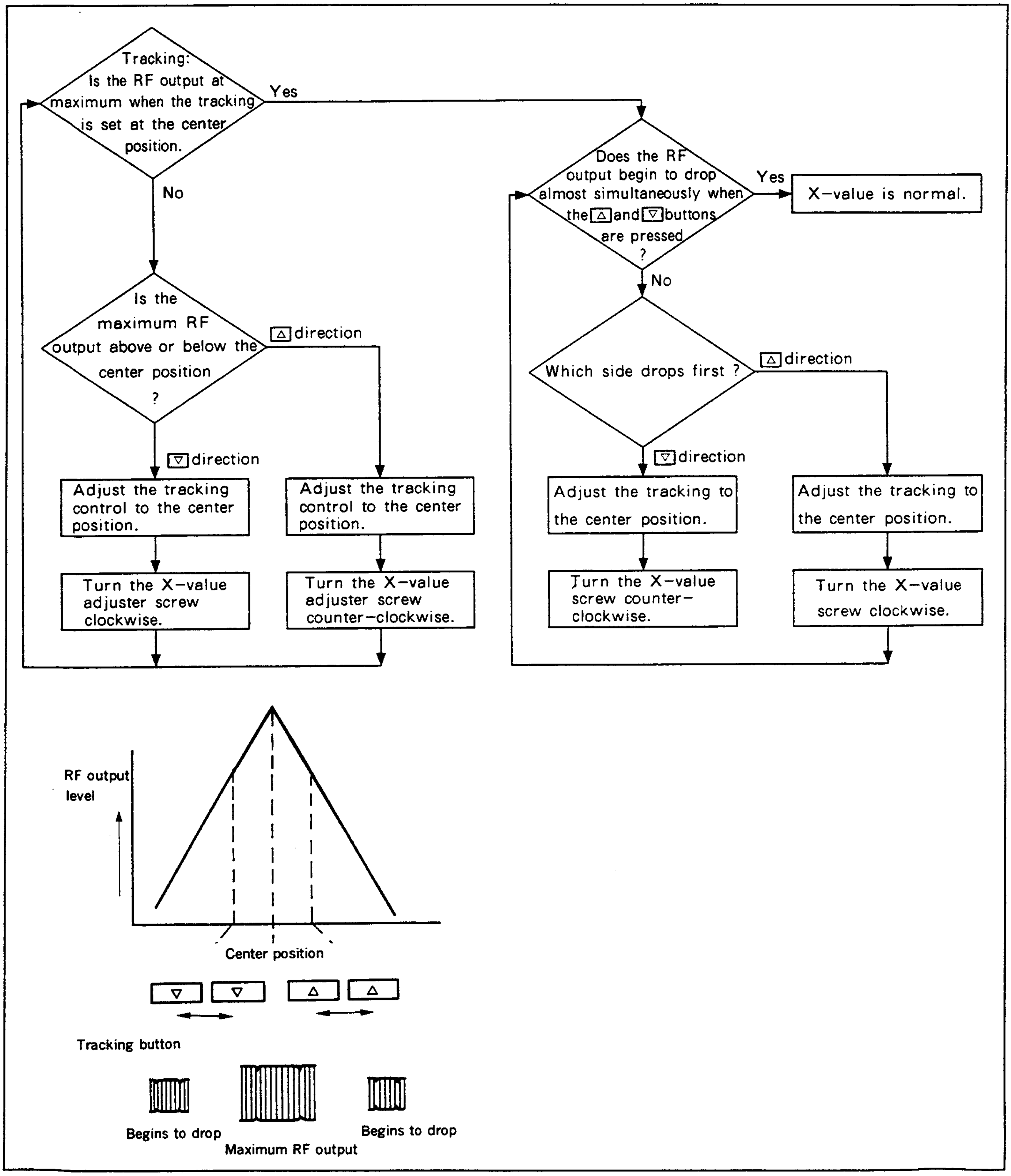

Tracking: Is the RF output at maximum when the tracking is set at the center position.
Yes
No
Is the maximum RF output above or below the center position ?
△ direction
▽ direction
Adjust the tracking control to the center position.
Turn the X-value adjuster screw clockwise.
Adjust the tracking control to the center position.
Turn the X-value adjuster screw counter-clockwise.
Does the RF output begin to drop almost simultaneously when the △ and ▽ buttons are pressed ?
Yes
X-value is normal.
No
Which side drops first ?
△ direction
▽ direction
Adjust the tracking to the center position.
Turn the X-value screw counter-clockwise.
Adjust the tracking to the center position.
Turn the X-value screw clockwise.
RF output level
Center position
▽
▽
△
△
Tracking button
Begins to drop
Maximum RF output
Begins to drop

Fig. 4-9.

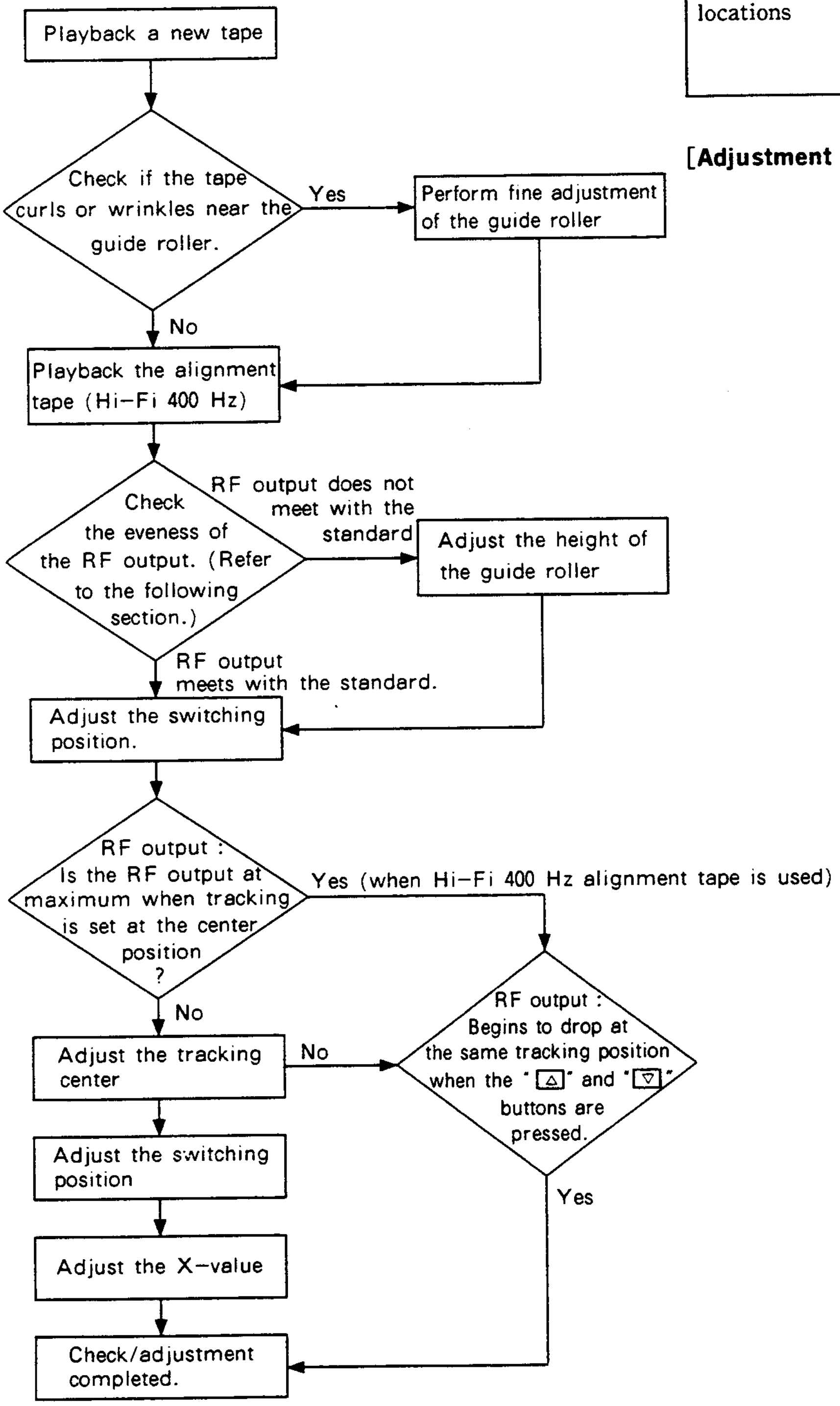
### 4-1-8. Adjustments after replacing the drum (video head)

**Purpose :** Co-relative height, X-value and other factors of the drum will deviate from those of the guide roller. If the drum is replaced properly, these deviations are extremely small.

**Precaution :** Turn off the auto tracking and set the manual tracking mode.

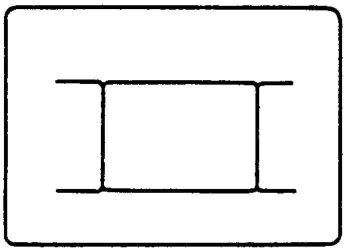
| | |
|---|---|
| Mode | Playback |
| Signal | Alignment tape (JVC-MH-1), blank tape |
| Measuring instrument | Oscilloscope |
| Measuring point | CH-1 : Connector PB RF pin for RF PC board check.<br>CH-2 : Connector RF SW P pin for RF PC board check. |
| Adjustment locations | Guide roller (refer to 4-1-5.)<br>Switching position, Tracking preset, SP delay mono-multi, X-value (refer to 4-1-8) } (Refer to the Service Guide) |

**[Adjustment method ]**

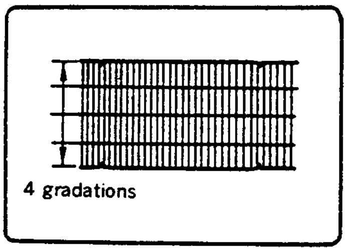

Playback a new tape
Check if the tape curls or wrinkles near the guide roller.
Yes
Perform fine adjustment of the guide roller
No
Playback the alignment tape (Hi-Fi 400 Hz)
Check the eveness of the RF output. (Refer to the following section.)
RF output does not meet with the standard
Adjust the height of the guide roller
RF output meets with the standard.
Adjust the switching position.
RF output : Is the RF output at maximum when tracking is set at the center position ?
Yes (when Hi-Fi 400 Hz alignment tape is used)
No
Adjust the tracking center
No
RF output : Begins to drop at the same tracking position when the "△" and "▽" buttons are pressed.
Yes
Adjust the switching position
Adjust the X-value
Check/adjustment completed.

### [Checking the eveness and fluctuation of the RF output]

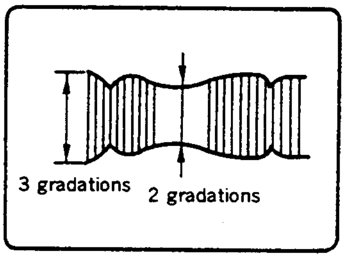
1) Set the RF output to the maximum level using the tracking buttons.



2) Perform fine adjustment of the voltage level range of the oscilloscope, then adjust the RF output deviation to within 4 gradations.



3) Press the tracking buttons and adjust the maximum amplitude of the RF output to within 3 gradations.
4) At this time, check if the minimum amplitude is more than 2 gradations.



5) Check that the RF output fluctuation between minimum and maximum levels is within 13%.

### 4-1-9. Checking the tension and torque

**Purpose:** To check that the tension, torque and compression force of the tape take-up section and mobile sections to ensure smooth tape run and achieve standard VTR performance.
If the tape transport is not smooth or problems occur in relation to the tape transport speed, perform the following check.

| | |
|---|---|
| Mode | Each operation mode without loading a cassette tape. (Refer to section 1-3.) |
| Measuring instrument | Torque gauge, Torque gauge adapter |

| Item | VTR operation mode | Reel to be measured | Measurement value |
|---|---|---|---|
| Main brake torque | Stop | Supply and take-up reels | 170g•cm or more |
| Review torque | Review | Supply reel | 180±30g•cm<br>(using the torque cassette) |
| Take-up torque | Playback | Take-up reel | 80 to 140g•cm<br>(using torque cassette) |
| Back tension torque | Rewind | Take-up reel | 4 to 25 g•cm |

**[Check method]**

Measure the torque using the torque gauge and torque gauge adaptor with the torque gauge fixed.

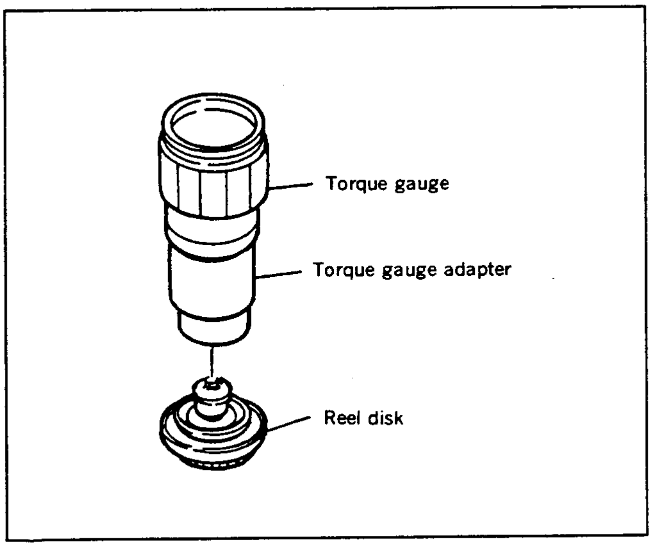


Fig. 4-13.

# SLV-E80AP/B/IT/NC/NP/UX/UY/VP

## RMT-V141A/V142A/V146A/V146D

**SONY®**

# SERVICE MANUAL

**AEP Model**
SLV-E80AP
**French Model**
SLV-E80B
**Italian Model**
SLV-E80IT
**North European Model**
SLV-E80NC
**Spanish Model**
SLV-E80NP
**UK Model**
SLV-E80UX/UY
**German Model**
SLV-E80VP

# SUPPLEMENT-1

Please correct your service manual.

- **SLV-E80VP: MESECAM model informations**
- **Corrections**

MESECAM model has been added to the SLV-E80VP model in the midst of production.

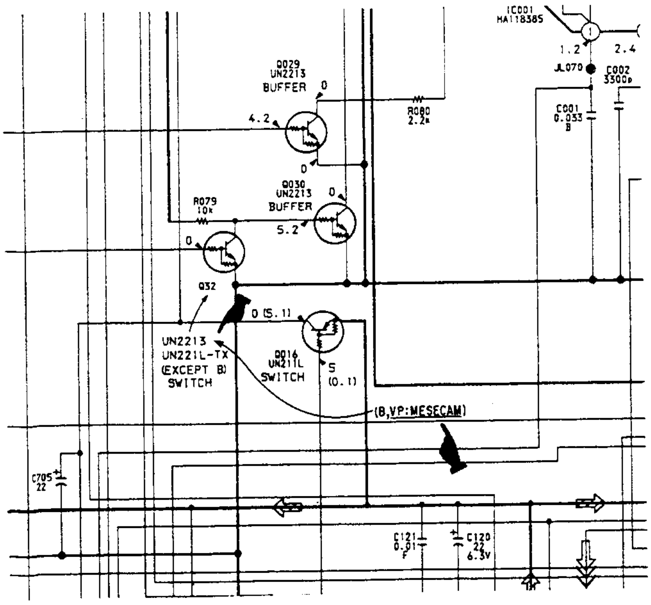
☛ : **Added or corrected position.**

## 1. SLV-E80VP: MESECAM MODEL INFORMATIONS

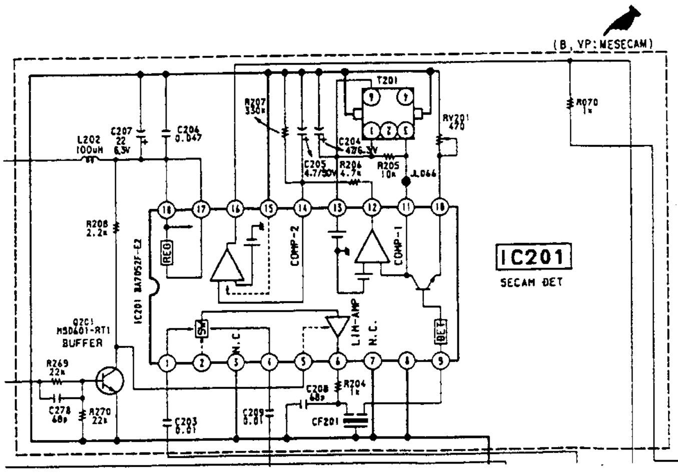
### 1-1. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAM

Page 4-8

- **Location: K-9 to L-10**

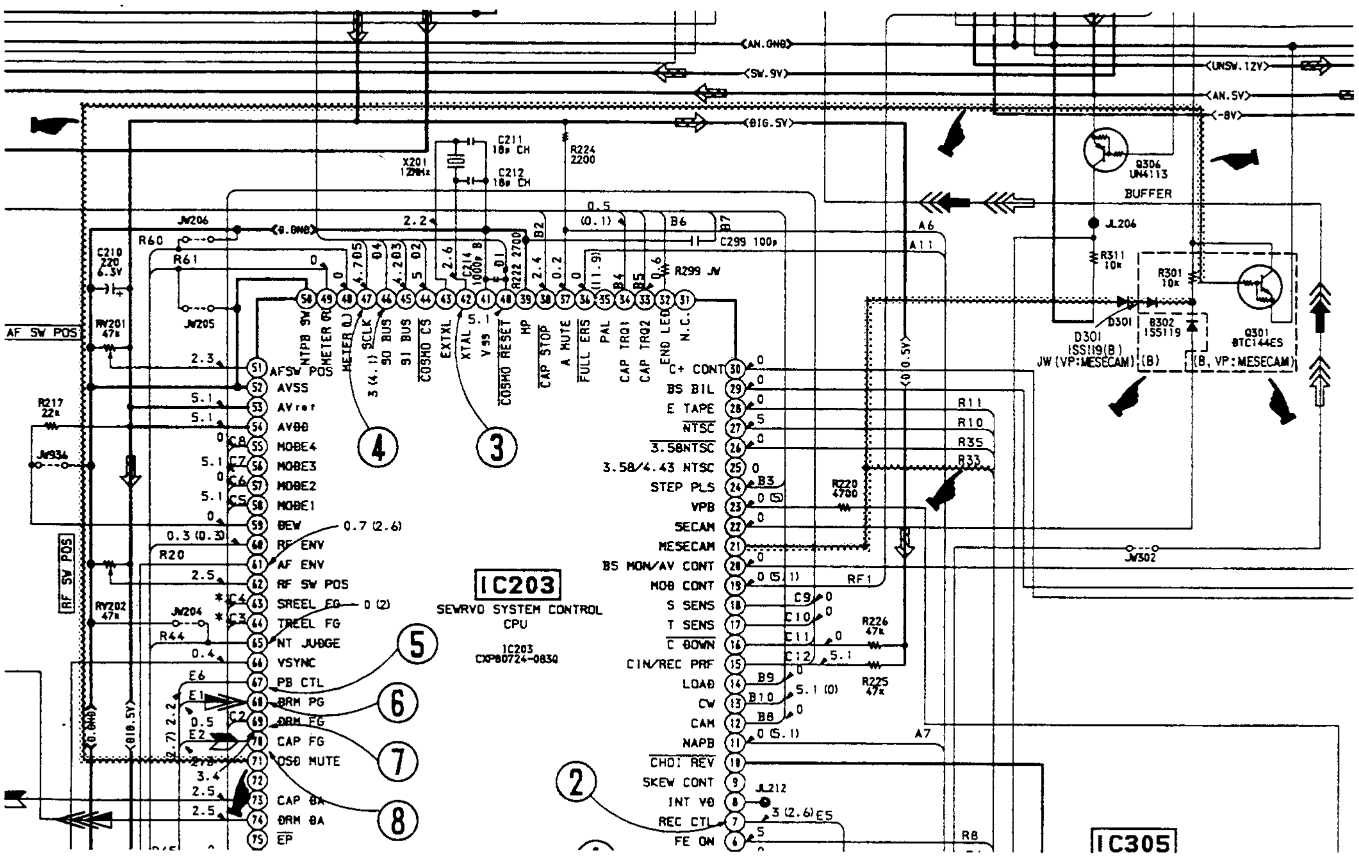

IC001
HA118385
1.2
2.4
JL070
C002
3300p
Q029
UN2213
BUFFER
0
4.2
R080
2.2k
C001
0.033
B
0
Q030
UN2213
BUFFER
0
R079
10k
5.2
0
Q32
0 (5.1)
UN2213
UN221L-TX
(EXCEPT B)
SWITCH
Q016
UN211L
SWITCH
5
(0.1)
(B,VP:MESECAM)
C705
22
C121
0.01
F
C120
22
6.3V

- **Location: C-13 to D-16**


(B, VP:MESECAM)
T201
R207
330k
RY201
470
R070
1k
L202
100uH
C207
22
6.3V
C204
0.047
C204
47/6.3V
C205
4.7/50V
R206
4.7k
R205
10k
JL066
R208
2.2k
REG
COMP-2
COMP-1
IC201
SECAM DET
IC201 BA7052F-E2
Q201
M5D601-RT1
BUFFER
SW
N.C
LIM-AMP
N.C.
DET
R269
22k
C278
68p
R270
22k
C203
0.01
C209
0.01
C208
68p
R204
1k
CF201

Page 4-17, 18

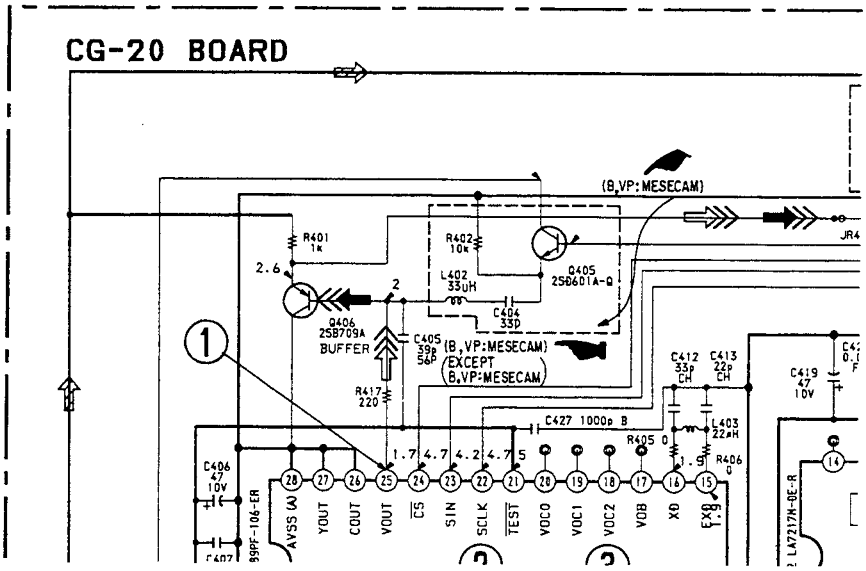
- **Location: C-20 to E-25**



IC203
SERVO SYSTEM CONTROL
CPU
IC203
CXP80724-083Q
IC305
<AN.GND>
<SW.9V>
<AN.5V>
<DIG.5V>
<UNSW.12V>
<-8V>
X201
12MHz
C211
18p CH
C212
18p CH
R224
2200
C299 100p
R299 JW
Q306
UN4113
BUFFER
JL204
R311
10k
R301
10k
D301
1SS119(B)
JW (VP:MESECAM)
D302
1SS119
(B)
Q301
DTC144ES
(B, VP:MESECAM)
R220
4700
JW302
R226
47k
R225
47k
JL212
JW206
JW205
JW204
JW934
R60
R61
R20
R44
R217
22k
C210
220
6.3V
RV201
47k
RV202
47k
AF SW POS
RF SW POS
NTPB SW
METER (R)
METER (L)
SCLK
SO BUS
SI BUS
COSHO CS
EXTXL
XTAL
V SS
COSHO RESET
HP
CAP STOP
A MUTE
FULL ERS
PAL
CAP TRQ1
CAP TRQ2
END LED
N.C.
AFSW POS
AVSS
AVref
AVDD
MODE4
MODE3
MODE2
MODE1
DEW
RF ENV
AF ENV
RF SW POS
SREEL FG
TREEL FG
NT JUDGE
VSYNC
PB CTL
DRM PG
DRM FG
CAP FG
OSD MUTE
CAP 8A
DRM 8A
EP
C+ CONT
BS BIL
E TAPE
NTSC
3.58NTSC
3.58/4.43 NTSC
STEP PLS
VPB
SECAM
MESECAM
BS MON/AV CONT
MOD CONT
S SENS
T SENS
C DOWN
CIN/REC PRF
LOAD
CW
CAM
NAPB
CHDI REV
SKEW CONT
INT VD
REC CTL
FE ON
①
②
③
④
⑤
⑥
⑦
⑧

Page 4-45

- **Location: B-3**



CG-20 BOARD
(B,VP:MESECAM)
R401
1k
R402
10k
L402
33uH
C404
33P
Q405
2SD601A-Q
Q406
2SB709A
BUFFER
C405
39p
56P
(B,VP:MESECAM)
(EXCEPT
B,VP:MESECAM)
R417
220
C427 1000p B
C412
33p
CH
C413
22p
CH
C419
47
10V
L403
22uH
R405 0
R406
0
C406
47
10V
C407
JR4
AVSS (A)
YOUT
COUT
VOUT
CS
SIN
SCLK
TEST
VOCO
VOC1
VOC2
VOB
XO
EXO
LA7217M-OE-R
①

## 1-2. EXPLDED VIEWS

_____indicates the added portion.

| Page | Ref. No. | Part No. | Description |
|---|---|---|---|
| 5-2 | 51 | * A-6782-276-A | MA-181 BOARD, COMPLETE (E80AP, JT, NC, VP, VP:MESECAM) |
| | 59 | * A-6754-660-A | CG-20 BOARD, COMPLETE (E80B, VP:MESECAM) |

- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

## 1-3. ELECTRICAL PARTS LIST

_____ indicates the added portion.

| Page | Ref. No. | Part No. | Description |
|---|---|---|---|
| 5-7 | | * A-6754-660-A | CG-20 BOARD, COMPLETE (E80B, VP:MESECAM) |
| | L402 | 1-408-976-21 | INDUCTOR 33μH (E80B, VP:MESECAM) |
| | Q405 | 8-729-422-27 | TRANSISTOR 2SD601A-Q (E80B, VP:MESECAM) |
| | R402 | 1-216-222-00 | METAL GLAZE 10μ 5% 1/8W (E80B, VP:MESECAM) |
| 5-11 | | * A-6782-276-A | MA-181 BOARD, COMPLETE (E80AP, IT, NC, VP, VP:MESECAM) |
| 5-13 | Q301 | 8-729-900-89 | TRANSISTOR DTC144ES (E80B, VP:MESECAM) |
| 5-21 | | * A-6727-545-A | RV-33 BOARD, COMPLETE (EXCEPT E80B) |
| 5-22 | C203 | 1-163-031-11 | CERAMIC CHIP 0.01μF 50V (E80B, VP:MESECAM) |
| | C204 | 1-126-154-11 | ELECT 47μF 20% 6.3V (E80B, VP:MESECAM) |
| | C205 | 1-126-163-11 | ELECT 4.7μF 20% 50V (E80B, VP:MESECAM) |
| | C206 | 1-163-035-00 | CERAMIC CHIP 0.047μF 50V (E80B, VP:MESECAM) |
| | C207 | 1-124-638-11 | ELECT 22μF 20% 12V (E80B, VP:MESECAM) |
| | C208 | 1-163-113-00 | CERAMIC CHIP 68PF 5% 50V (E80B, VP:MESECAM) |
| | C209 | 1-163-031-11 | CERAMIC CHIP 0.01μF 50V (E80B, VP:MESECAM) |
| | C278 | 1-163-113-00 | CERAMIC CHIP 68PF 5% 50V (E80B, VP:MESECAM) |
| | CF201 | 1-527-943-00 | FILTER, CERAMIC (E80B, VP:MESECAM) |
| | IC201 | 8-759-199-28 | IC BA7025F-E2 (E80B, VP:MESECAM) |
| 5-23 | L202 | 1-408-982-11 | INDUCTOR 100μH (E80B, VP:MESECAM) |
| | Q032 | 8-729-421-19 | TRANSISTOR UN2213 (E80B, VP:MESECAM) |
| | Q201 | 8-729-010-25 | TRANSISTOR MSD601-RT1 (E80B, VP:MESECAM) |
| 5-24 | R070 | 1-216-049-00 | METAL CHIP 1k 5% 1/10W (E80B, VP:MESECAM) |
| | R204 | 1-216-049-00 | METAL CHIP 1k 5% 1/10W (E80B, VP:MESECAM) |
| | R205 | 1-216-073-00 | METAL CHIP 10k 5% 1/10W (E80B, VP:MESECAM) |
| | R206 | 1-216-065-00 | METAL CHIP 4.7k 5% 1/10W (E80B, VP:MESECAM) |
| | R207 | 1-216-109-00 | METAL CHIP 330k 5% 1/10W (E80B, VP:MESECAM) |
| | R208 | 1-216-057-00 | METAL CHIP 2.2k 5% 1/10W (E80B, VP:MESECAM) |
| | R269 | 1-216-081-00 | METAL CHIP 22k 5% 1/10W (E80B, VP:MESECAM) |
| | R270 | 1-216-081-00 | METAL CHIP 22k 5% 1/10W (E80B, VP:MESECAM) |
| 5-25 | RV201 | 1-238-852-11 | RES. ADJ, CERMET 470 (E80B, VP:MESECAM) |
| | T201 | 1-409-467-11 | COIL (TRAP 7.8k) (E80B, VP:MESECAM) |

## 1-4. ADJUSTMENT

Page 7-5

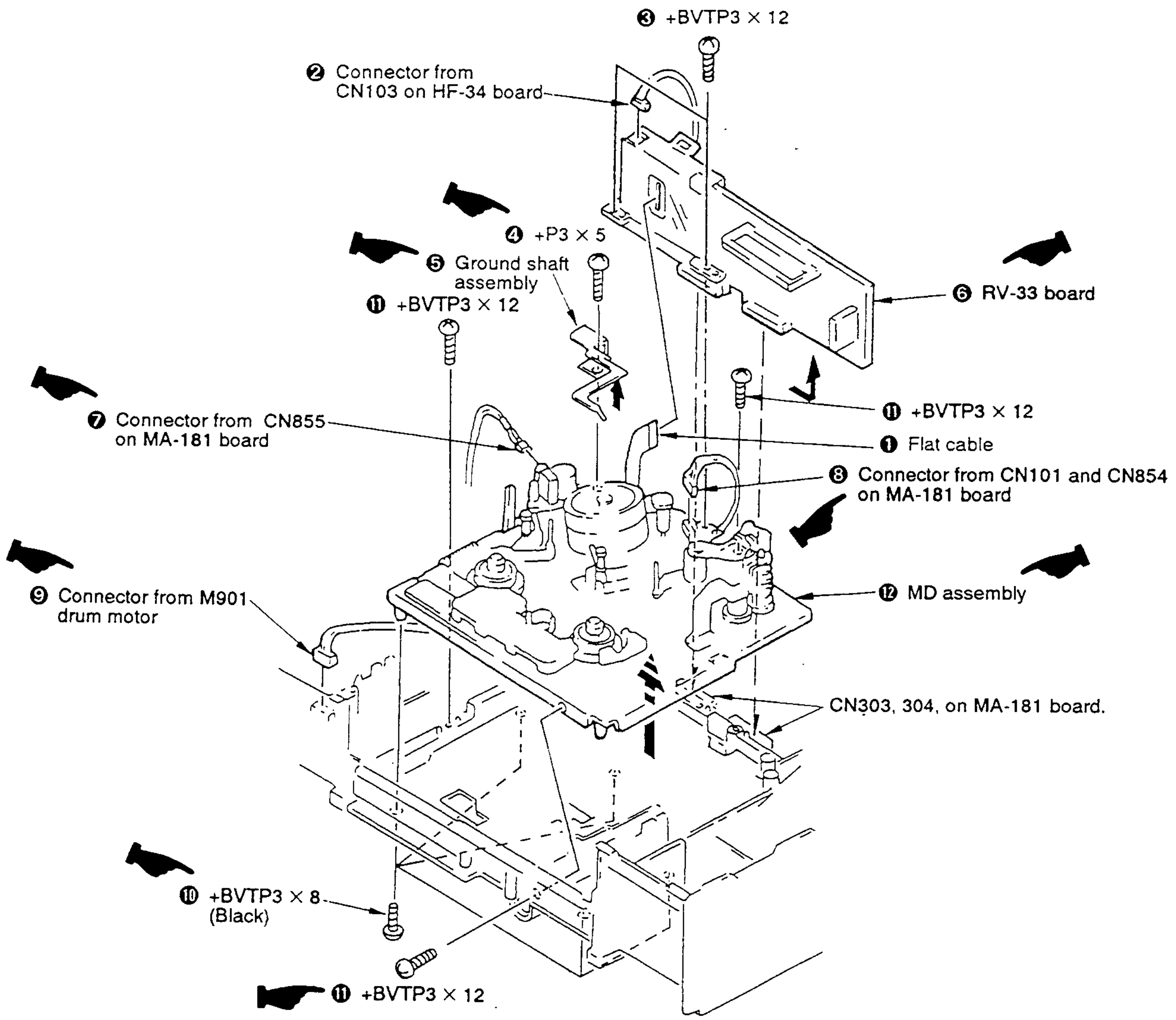
**2-3-8. SECAM Discrimination Adjustment**
**(RV-33 Board) (SLV-E80B, VP: MESECAM)**

# 2. CORRECTIONS

## 2-1. DISASSEMBLY

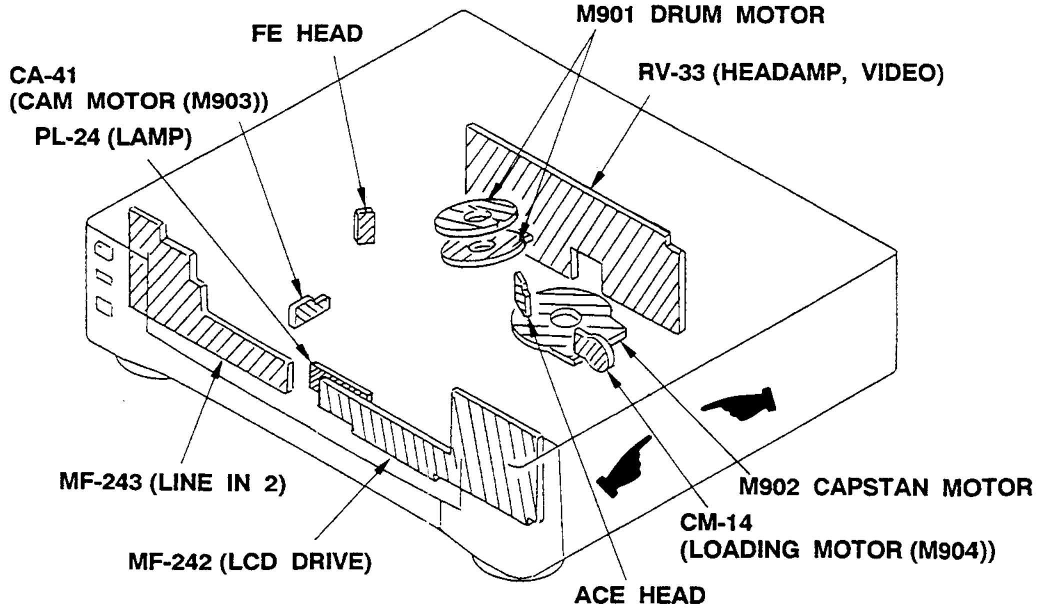
Page 2-3

### 2-6. RV-33 BOARD AND MD ASSEMBLY


❸ +BVTP3 × 12
❷ Connector from CN103 on HF-34 board
❹ +P3 × 5
❺ Ground shaft assembly
⓫ +BVTP3 × 12
❻ RV-33 board
❼ Connector from CN855 on MA-181 board
⓫ +BVTP3 × 12
❶ Flat cable
❽ Connector from CN101 and CN854 on MA-181 board
❾ Connector from M901 drum motor
⓬ MD assembly
CN303, 304, on MA-181 board.
❿ +BVTP3 × 8 (Black)
⓫ +BVTP3 × 12

Page 2-7, 4-6, 4-11, 4-30

### 2-11. CIRCUIT BOARDS LOCATION


FE HEAD
M901 DRUM MOTOR
CA-41 (CAM MOTOR (M903))
RV-33 (HEADAMP, VIDEO)
PL-24 (LAMP)
MF-243 (LINE IN 2)
M902 CAPSTAN MOTOR
CM-14 (LOADING MOTOR (M904))
MF-242 (LCD DRIVE)
ACE HEAD

## 2-2. EXOLODED VIEWS

Correction

| Page | Ref. No. | Description | Part No. | |
|---|---|---|---|---|
| | | | Incorrect | Correct |
| 5-1 | 37 | COVER, SLIDE (E80NC, NP) | 3-708-813-21 | 3-708-816-21 |
| | 37 | COVER, SLIDE (E80AP, IT, VP) | 3-708-813-31 | 3-708-816-31 |
| | 37 | COVER, SLIDE (E80B) | 3-708-813-41 | 3-708-816-41 |
| 5-4 | 208 | TABLE ASSY, REEL | X-3727-789-1 | X-3727-798-1 |

## 2-3. ADJUSTMENTS

Page 7-1

### 2-1-1. Instruments to be Used

1) Color TV
2) Oscilloscope 1 or 2 phenomena, band more than 30 MHz, delay mode, as provided.
3) Frequency counter (min. 8 digits)
4) PAL, SECAM pattern generator

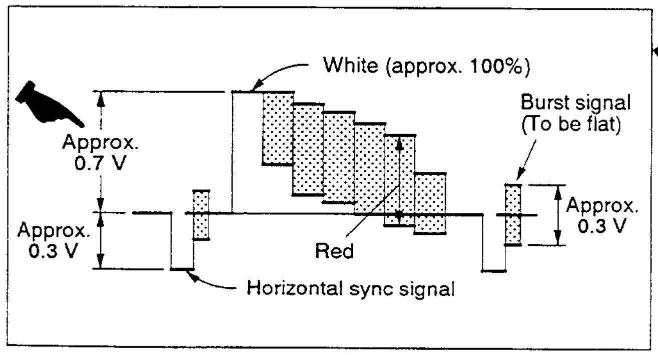

White (approx. 100%)
Burst signal (To be flat)
Approx. 0.7 V
Approx. 0.3 V
Approx. 0.3 V
Red
Horizontal sync signal

*Fig. 7-2-2.*

Page 7-3

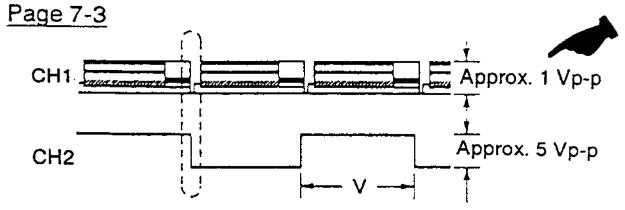

CH1
Approx. 1 Vp-p
CH2
Approx. 5 Vp-p
V

*Fig. 7-2-4.*

Page 7-4

**Adjusting Method:**

1) Set to E-E mode in the no signal condition.
2) Connect frequency counter to emitter of Q034, and adjust with RV006 so that the reading on frequency counter goes 3.80 ± 0.05 MHz.
3) Feed the color bar signal and record it.
4) Playback the recorded signal and check the signal at VIDEO LINE OUT goes 1.00 ± 0.02 Vp-p with oscilloscope.

Page 7-3

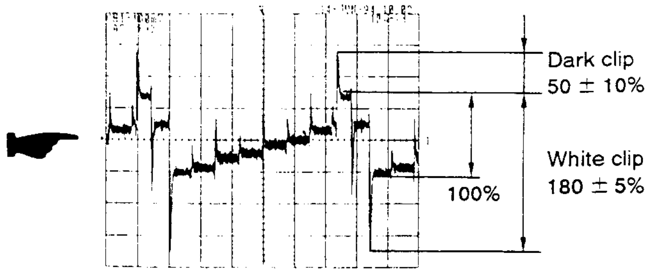
### 2-3-3. White Clip Adjustment (RV-33 Board)

**Purpose:**

Adjust the frequency of FM modulated YFM signal doesn't go too high.

When it is out of order, white goes flat and black is over-modulated.

| | |
|---|---|
| Model | E-E |
| Signal | Color bar |
| Measurement Point | Pin ㊺ of IC001 |
| Measuring Instrument | Oscilloscope |
| Adjusting Element | RV004 |
| Specified Value | White clip :180 ± 5%<br>Dark clip :50 ± 10% |


Dark clip 50 ± 10%
White clip 180 ± 5%
100%

English
94K0569-1
Printed in Japan
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Sony Corporation
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Home A&V Products Div.
Published by Personal A&V Products Div.
Quality Engineering Dept.